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MACMILLAN'S
TEACHING IN PRACTICE
VOLUME ONE

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MACMILLAN'S TEACHING IN PRACTICE

AN ENCYCLOPAEDIA OF MODERN METHODS
OF TEACHING IN THE PRIMARY SCHOOL
WRITTEN BY RECOGNISED AUTHORITIES
IN EDUCATION AND

EDITED BY

E. J. S. LAY

*In seven volumes, with a Portfolio of 160 Class Pictures in full colour and
8 additional Colour Plates containing thirty-two drawings to illustrate the
Art Lessons A most useful Reference Book to the pictures is issued with
the Portfolio*

MACMILLAN AND CO., LIMITED
ST MARTIN'S STREET, LONDON

1949

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First Edition, 1931

Reprinted, 1932, 1933, 1934, 1938

Second Edition, 1947

Third Edition, 1949

PRINTED IN GREAT BRITAIN BY PURNELL AND SONS, LTD.,
PAULTON (SOMERSET) AND LONDON

FOREWORD

"WHEN I was a child I spake as a child, I understood as a child, I thought as a child." The secret of education lies in the full appreciation of the truth expressed in these words. In the mind of the teacher the emphasis must be laid upon the child, not from the viewpoint of the adult, nor in terms of what the child may become, but rather in the consideration of what he is. The needs, outlook and interests of the child are the guiding factors for his instruction; his personal activities are in themselves the path to his development. The aim of the modern teacher is to regulate the activities of the child, and to present his studies in terms of his childish experience.

The stage of mental development through which a child between the ages of seven and eleven is passing, is at present not fully investigated. The Report of the Consultative Committee on the Primary School, however, presents certain aspects of child psychology which must receive full consideration during this period of his life. By the age of seven the child has achieved some measure of control over his body and his mind. He has learnt to recognise and name the common objects of his experience, but his powers of mental organisation are small, and his scope of attention very limited. Throughout the years at the Primary School his reasoning and critical faculties develop slowly, and he remains extremely suggestible, that is, "he is willing to accept facts, views and methods on trust." The powers of æsthetic appreciation and imagination are very great during these years preceding adolescence, the one finds outlet in the child's passion for drawing, modelling and "making" things generally, while the other accounts for the interminable games of "make-believe" which are so characteristic of the child.

A teacher's book intended for use in the Primary School must be specially adapted to fulfil the needs of this particular period in the life of the child. The matter of Teaching in Practice has, therefore, been based on the principles of child psychology set out in the Report. The work throughout has been considered from the standpoint of the child, with illustrative references to objects within his experience. Scope for the dawning reasoning and critical faculties of the child, and opportunities for mental discipline are given by means of carefully-framed questions and exercises. In view of the child's suggestibility the matter has been presented from the soundest and most modern viewpoint. In the subjects of handwork, music, needlework, drawing, etc., care has been taken to present æsthetic material which will appeal to the child of Primary School age. Ample opportunities for imaginative activity will be found in almost every subject, the instincts of "make-believe" being specially considered in the dramatic and English sections. Every aspect of the mentality of the Primary School child is provided for in these volumes.

The teacher who is restricted by lack of time or opportunity from making full use of libraries, museums and picture galleries for the purpose of study and research, and for the selection of class illustrations, will find these volumes of inestimable service. Teaching in Practice contains copious material from authoritative sources for every side of education in Primary Schools, and offers the opportunity for a teacher to become a specialist in his work. The aim of this Encyclopædia is to relieve the busy teacher of the burden of laborious research and preparation of lessons, so that he may study his pupils with that single-minded devotion which alone brings success.

PLAN AND SCOPE OF THE WORK

THIS Encyclopaedia has been prepared to meet the needs of teachers in Primary Schools. It consists of seven volumes which deal in detail and from authoritative sources with every branch of the school curriculum.

Most of the material is set out in the form of complete lessons, which in each subject more than cover a full four years' course of work in the Primary School. Each lesson opens with a teacher's *Introduction*, which contains ample material for revision or study in connection with it. In such subjects as history, geography and nature study, the teacher's *Introductions* from lesson to lesson form a connected course and a veritable mine of information.

The *Introduction* is followed by the *Lesson* proper, which is the substance of the children's study, told in simple language and in a form suitable for immediate use in the classroom. The *Lessons* are further amplified by notes, teaching hints, questions and exercises, and, where possible, by illustrations specially drawn for reproduction on the blackboard. In addition the lessons are illustrated by 160 Class Pictures in full colour.

The volumes have been planned with a view to practical convenience in their use. Each of the first four volumes contains a year's work in the greater number of the principal subjects of the curriculum,—history, English, needlework, nature study, geography and handwork,—so that the minimum amount of reference from volume to volume is necessary during the study of any particular year. The subjects of music, drawing, arithmetic and handicraft are contained in one volume, Vol. V., and are dealt with for the whole period of four years. Additional subjects and extra material are contained in an omnibus volume, Vol. VI. The last volume, VII., provides some alternative courses for children in their last year in the Junior School; articles on woodwork, bookcrafts, speech training and drawing for teachers; and an Index to the volumes.

The work has been treated on the most generous lines, so that a teacher may not be restricted by the particular syllabus suggested in these volumes, and will have no difficulty in adapting the material to suit his or her particular needs. It should be understood that each *Lesson* generally contains material sufficient for more than one school period, and that there is an abundance of extra material provided in Vols. VI. and VII.

A list of *Contents* is included at the beginning of each volume.

The Reference Book to the Class Pictures contains questions and answers on most of them, and much additional material for the teacher's use.

VOLUME I.—A year's course of lessons for children from seven to eight years of age in the following subjects: History; Handwork for History, English,—including Literature, Oral and Written Composition, Spelling, Grammar and Poetry; Plays; Notable Pictures, Needlework; Nature Study; Geography, Handwork for Geography.

VOLUME II.—A year's course of lessons as above for children from eight to nine years of age with additional sections on Decorative Needlework and Practical Geography.

VOLUME III.—A year's course of lessons for children from nine to ten years of age.

VOLUME IV.—A year's course of lessons for children from ten years of age to eleven plus.

VOLUME V.—A four years' course of lessons in the following subjects Music, Drawing, including Pencil Drawing, Pastel Drawing, Memory Drawing, Brushwork and Pattern-making, Handwork and Art Occupations, Paper and Cardboard Modelling leading to Bookbinding; Arithmetic and Simple Geometry.

VOLUME VI.—This is an omnibus volume containing material for incidental lessons during the four years' course on the following subjects: Hygiene and Health Lessons; Notable People, Notable Days; General Knowledge,—including material for a Simple Science Course, Intelligence and Group Tests; Scholarship Tests, Dramatics; Friday Afternoon Stories.

VOLUME VII.—An alternative course for children in the last year of the Junior School dealing with History, Nature Study and English. In addition there are special articles dealing with Woodwork in the Classroom, Elementary Bookcrafts, Speech Training, Mime, Verse Speaking, Drama and Puppetry, and Drawing as an Aid to Teaching. This volume also contains an Index to the whole work.

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ACKNOWLEDGMENTS

The Editor is indebted to the following for permission to make use of the copyright material contained in this volume :

MESSRS. BASIL BLACKWELL, LTD., for "The Duck," by Miss Edith King, and "The Scissor-Man," by Miss Madeleine Nightingale; Mr. ALGERNON BLACKWOOD for "Jack-of-the-Inkpot," from *The Education of Uncle Paul*; Miss M. K. BYRNE; Messrs WM. COLLINS, SONS & CO, LTD, for "Wings or Tails" and "Lucky and Unlucky," from *Once upon-a-Time Stories*, by Mr. Stephen Southwold; Mr. WALTER DE LA MARE, The Owners of the copyright for "A Friend in the Garden," by Miss JULIANA HORATIA EWING; Miss ROSE FYELMAN for "The Cuckoo," reprinted from *Punch*, by permission of the Proprietors, and from *The Fairy Green* (Methuen & Co); for "The Canary," reprinted from *Punch*, by permission of the Proprietors, and from *The Fairy Flute* (Methuen & Co); and for "Foolish Mabel," from *Forty Good-Night Tales* (Methuen & Co.); Mr. NORMAN GALE, Messrs GEORGE G. HARRAP & CO, LTD., for "Hans the Shepherd Boy," by Miss Ella Lyman Cabot, from *Stories for the Storyteller*, Mr F. W. HARVEY and Messrs SIDGWICK & JACKSON, LTD, for "The Boy with the Little Bare Toes," from *Gloster Friends*; Miss MARIAN V. HAYES; Messrs. T. WERNER LAURIE, LTD, for the three poems by Eugene Field, The EDITOR of

ACKNOWLEDGMENTS

Little Folks for "The Hop-About Man," by Agnes Grozier Herbertson; Messrs. LONGMANS GREEN & Co., LTD, for "My Ship and I," from *A Child's Garden of Verses*, by Robert Louis Stevenson; Messrs. METZLER & Co. (1920) LTD, for "The Three Little Pigs," by Sir Alfred A. Scott-Gatty, from *Little Songs for Little Voices, Book I*; THE NATIONAL SUNDAY SCHOOL UNION for "Jack Frost," by Miss Cecily E Pike, from *Child Songs*; THE EXECUTOR of the late E. Nesbit for "Baby Seed Song", Miss DOROTHY M. PRESCOTT; Miss FLORA SANDSTROM, THE PROPRIETORS of *The Schoolmistress* for "The Fairy and the Bee," by E. L.; MR. JAMES STEPHENS; Mr WILFRID THORLEY; and MRS FRIDA WOLFE and Messrs. SIDGWICK & JACKSON, LTD, for "Choosing Shoes," from *The Very Thing*.

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**HISTORY TEACHING
IN THE
PRIMARY SCHOOL**

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From the picture by Sir Edward Burne-Jones

PERSEUS AND THE GREY SISTERS

Perseus was sent by Polydectes, King of Seriphus, to secure the head of Medusa the Gorgon. On his way he stole from the Grey Sisters their one eye and refused to return it until they gave him information. He succeeded in his task, and on his arrival home turned the king and his court into stone by showing them the Gorgon's head.

GENERAL INTRODUCTION TO THE FOUR YEARS' COURSE

THE successful teacher of history must have a sound knowledge of his subject, and himself possess the sense of its reality which alone gives power to impart it to the child. The history lesson should not be regarded as a pleasant interlude to more serious work, or as a tedious repetition of names and facts, but as a vivid reconstruction of the past and of the progress of man. Rightly considered, a knowledge of history interprets and illumines the whole of human life.

When the child learns that the world has not always been as he finds it now, he will want to know the stages through which humanity has passed in its development. Even the young pupil can understand that conditions of life to-day are better than they were in the past. He learns that, in days gone by, men's lives and liberties were at the mercy of tyrants and lawless men, that judges could be bribed and that robbers often went unpunished, and he realises that, in general, life to-day is more comfortable and secure than ever before.

The task of the teacher of history is to present with the utmost reality the pageant of man's progress through the ages.

The value of stories—All children love a story, and to make the history lesson interesting as a story is not a difficult task. But much more than a mere story is required if the history teaching in the primary school is to be successful, that is, if it is to awaken the sympathy with and understanding of the past which are the only foundations of the historical sense.

The story-loving nature of a child demands that the history syllabus should be based largely on biographies, by means of which the teacher raises a preliminary interest in

history and, at the same time, provides the pupil with a foundation of knowledge. The history that is given to young pupils should consist of a series of interesting episodes, situations and conditions of life, so arranged that it is possible for them to appreciate in a general way the development which is constantly taking place in the history of mankind. Stories of famous men and women showing the conditions in which they lived form the basis of a suitable course. In dealing with these lives, we should remember that children's minds are crude and simple, and that they understand only the direct. They appreciate acts which strike the eye and ear, such qualities in people as meet with unmitigated approval or condemnation. Complexity of action and motive is out of place in stories for young children.

Social conditions take a prominent place in the history lesson. Accounts of how people lived in bygone days, the clothes they wore, the houses in which they lived, and the manner in which they got their living, all interest the children. Moreover, these conditions can be compared and contrasted with those of to-day, and the past thereby connected with the present, so that the sense of reality may not be lost.

The imagination in history.—As in all teaching, we must work with the current of the child's nature. The vivid imagination of the child must be taken into account and satisfied in the history lesson. The teacher has no need to foster imagination,—it is rather his task to ensure that the pupil's image is approximately accurate, and from that image to develop impressions which are in accordance with historical truth. By supplying suitable information, the teacher gives the material for the exercise of the

imagination, which helps the child to people the present with figures of the past. For this reason, our stories should be filled with descriptive and brightly-coloured detail.

The child is naturally interested in things which we may consider trivial. The teacher will do well to make use of this love of the trivial in dealing with younger pupils in order to lead up to and illustrate the more important general factors in history. From a wealth of detail, the pupil will derive a general impression, which is far more important than that he should remember a mass of facts. Most of us forget all but a small fraction of the facts which we have learnt, and the fruits of our study are judged by the intelligence and mental sympathy which we display. True knowledge is not acquired by study which penetrates no deeper than the memory.

The time sense.—We have emphasised the importance of the personal and the trivial in the story, but we must also show that history is a continuous development, and the time element must be constantly borne in mind if the history course is to be of real value. The episodes, situations and biographies should be in chronological order. The lessons should be linked in sequence, so that the child can get connected ideas of the landmarks of human endeavour.

Every effort should be made to bring home to the pupils the *time sense*. The best method is by means of time charts, of which the time-line is the most suitable for ordinary purposes. The time chart should be simple—it must elucidate matters and not confuse the mind. If its meaning is not obvious at a glance, or if it is not easily remembered, the chart is a failure. It is often found better to keep to one kind of chart, and probably the time-line chart will be found the most practical.

A simple time chart for the classroom wall can be constructed of cartridge paper, or brown paper, 24" to 30" in width and several yards long. A broad line of time suitably dated is drawn along the middle of

the paper. Above and below can be affixed illustrated cuttings, picture postcards and children's sketches. English history may be confined to one side of the line and foreign history to the other.

Because stories, biographies, etc., must to a certain extent be isolated and self-contained, the time chart is essential in order to relate the lives or the periods one to another. Another time chart suitable for comparatively short periods is a folding screen of cardboard, each piece representing a century, and each leaf containing pictures, or words, illustrative of the period. This forms a panorama which supplies a time sense for young pupils. The children, too, should have a time-line in their own notebooks; and, as we have suggested, their own collection of drawings, postcards, or other illustrations, can be used for the wall chart.

There are many other varieties of time charts: the rectangular time chart—the stream or river of time—the pedigree time chart—the pendulum to represent the varying fortunes of a struggle—the corridor illustrating the passage of time—a wavy line representing the ebb and flow of a war. All these are useful and interesting, but in practice the straight line will generally be found to be the most effective.

A second virtue of the time chart is that it provides something for the pupils to *do* which bears directly on the history lesson. In developing the all-important sense of time and in demanding the active co-operation of the pupils the value of the time chart in the teaching of history can hardly be over-estimated.

Local history.—In our attempt to make history real, and to bring it within the scope of the young pupils' experience, we must not overlook the value of local history, that is, local developments or events which throw light on national affairs. In some cities like London, York, Winchester, Exeter, Gloucester, etc., there is plenty of material for the study of local history, but often the

authentic local history of a district is too limited in scope, or too trivial in character, to provide a satisfactory course of lessons. Every teacher should study the locality to find out what examples of general history are available for use in class.

Some historical remains exist within the reach of most schools. They may be the stone circles of the men of the Old Stone Ages—Stonehenge itself, the circles on the Cornish and Devon moors, etc. They may be pre-Roman strongholds, such as Maiden Castle, Old Sarum, Cissbury Ring, it may be a dolmen like Kit's Coty House, it may be a barrow or ancient burial-place, or one of the track-ways, such as the Pilgrim's Way, which were traversed by our far-distant ancestors before the days of written history. Every part of southern England must have felt the presence of the Romans, and traces of Roman occupation can be found in many districts. Most of the English counties have seen severe fighting with the Jutes, the Angles or the Saxons, and some traces of these struggles are still to be found. Much of the history of England is written on the map, e.g., the names of counties and towns may recall Roman, Danish and Norman influences.

Some districts are fortunate enough to possess in their neighbourhood a castle, or an abbey, or even an old church. These survivals of the past should be utilised to the utmost extent. Many places have a museum containing relics—old armour, swords, household utensils and instruments of industry. Visits should be made to these historical remains, but it should be remembered that the un instructed looking at such objects, or a casual walk round a castle or church, is of little value. When pupils are taken to see the remains of an old building, or to pay a visit to a museum, they should be furnished by means of a lesson given beforehand with a knowledge of the historical interest of the building. They should each be prepared with a rough plan showing its position and purpose. They can then go round the ruins systematically and intelli-

gently. A visit to an object of historical interest should be followed by some form of written exercise.

Street names afford a valuable guide to local history. A large number of the street names of our towns have an historical significance. In London, we have Cheapside, the Old Bailey, the Poultry, Fleet Street, the Strand, Northumberland Avenue, Blackfriars, Whitefriars, etc., all showing the development of London from early days. In Leeds are the Briggate, Kirkgate and the Calls, in Nottingham are Greyfriarsgate and Fletchergate, in Edinburgh we have the Canongate, the Lawnmarket, the Candlemaker Row, etc.

There is, too, a large section of street names that commemorate local worthies and national celebrities, while the names of modern battles and sieges—Waterloo, Alma, Ladysmith—usually indicate the period in which the streets were built.

Pictures.—Pictures, too, serve a most useful part in the history lesson. The chief value of a class picture is that it provides in concrete form material about which a child can talk. A teacher's description of an event can, for various reasons, be misunderstood, but in the picture the child sees the whole event clearly before him. The picture, too, arouses interest, and when children are interested they not only listen and think, but they remember. When we wish to give the young people as much detail as we can without undue strain, pictures serve our purpose best. The artist puts in many details which it would be tedious to state in writing, or to tell orally. From the study of a picture the young pupil can gain a fuller conception of a situation than the most well-chosen words can convey, for the artist not only gives a wealth of detail, but endows the subject with atmosphere and reality.

Historical pictures must fulfil certain conditions. They must not contain anything that contradicts historical evidence. They must be consistent with what we know of the period. Pictures can help a great deal to

teach the details of dress, the architecture and modes of living of a period. If good historical pictures are available, they should be utilised to the full.

Plays.—The use of the dramatic method of teaching history should also be considered. Undoubtedly, plays have a value in helping the child to put himself in the place of a person and in a real situation, but plays are open to several objections. They take a very considerable amount of time, there is a tendency for the "best" children to do all the work; in addition, as a rule, only spectacular and striking events can be presented, events which are perhaps not of much historical value. In effect, plays are mainly recreative in character; they give pleasure to those who take part in them both as actors and as audience, but they should be used with moderation. A little impromptu acting during the last ten minutes of a lesson is often helpful in getting young children to appreciate the point of a certain lesson. Many children are too shy to express themselves before the class, but a little acting in dumb show will go far to assist them in overcoming their shyness.

Questions and exercises.—Perhaps the most general form of exercise is the "old-fashioned" composition. This is by no means to be rejected on account of its antiquity, but it should be remembered that even children of ten years of age cannot, as a rule, write long compositions. Writing is still a difficult task for them, and their efforts are mainly given to the mechanical task of writing, rather than to the expression of their thoughts. Experience shows that the amount written by the child is not usually a fair estimate of his knowledge of the lesson. The questions should be so framed that the answers required are brief, and in written exercises the teacher should not pay undue attention to the handwriting, or to the accuracy of the spelling. The written answer should be considered mainly from the point of view of the facts

which the child has tried to state. With the children in the two lower classes the written answers required should rarely consist of more than a simple sentence.

In general, oral answers are not of equal value with written answers. Only one child at a time can answer an oral question, and it is difficult to avoid putting leading questions, or questions which require one or two words only for an answer. As a rule, written exercises should be given in a separate lesson. The course of the narrative cannot be interrupted for the pupils to write answers, and at the end of the lesson it is more profitable for the pupils to ask questions and make comments.

Some writing, however, can properly be done during the lesson. The class may have notebooks in which they may write brief notes of the facts, either from the blackboard, or from the teacher's dictation. Some dates may be given. The line of time may be used. Towns may be inserted in an outline map, or simple sketches may be made from the teacher's sketch on the blackboard.

As we have said, for young children the oral lesson is the chief means of imparting the facts of history. Oral work, however, must be supplemented by the children's own activities. The retelling of the story by members of the class is a most useful exercise.

Other means of supplementing the oral lesson are drawing and various kinds of handwork. A warning should be given in this connection that an undue amount of time should not be spent in the making of models. There is a danger that the whole attention of the child may be concentrated on the technique of the work, so that the historical value of the exercise is lost. Copying simple sketches of historical objects, scenes of everyday life, illustrations of architecture, armour, etc., is useful, for the actual work of drawing implants the facts in the child's mind.

An exercise which is not open to criticism is that of drawing maps. Map drawing should be an essential part of the history

lesson, as it is of the geography lesson. The pupils may be supplied with outline maps, or they may be required to draw their own. The maps can be used in practically every lesson, either for the purpose of fixing in the child's mind the situation of the episode or story under discussion, or for inserting the names of places which are mentioned during the story. Unless the name of a place is connected with its environment, it means little or nothing to the child. Moreover, putting places on the map ensures that the pupils are doing something, that they are following the course of the lesson, and that the facts are being impressed on their minds.

Textbooks.—In history teaching much information has to be given to the pupil, and the problem which faces the teacher is that of securing the active participation of the pupils in the work. The history lesson will usually be interesting, but the aim of teaching is not to amuse or merely to interest.

Teaching in the junior classes will very largely consist of narration by the teacher, and there is the danger that the pupils' attitude may degenerate into passive receptivity. The power of children to listen with attention for any considerable length of time is often over-estimated. The more the brain is exercised over a subject, the more lasting will be the impression produced, hence the pupils should use their brains as much as possible in their work. As we have said, for young children, the main facts of history must be obtained from the teacher, but we should not overlook the fact that, even for young pupils, the textbook has valuable uses. Sometimes the textbook will be found of great service in providing a revision of a lesson previously given, or in supplementing a story that has been briefly told. Often the children will be stimulated and interested to find out for themselves all they can from the book, and they will listen gladly to additional information provided by the teacher. From the earliest years the children should be taught to do

something for themselves, and the early inculcation of the habit of studying from books cannot be over-estimated. Study in early years, too, has a highly important disciplinary value, for children must learn to *study silently*. After every study lesson the pupils should be questioned either orally, or in writing, on what they have read. It will be found a useful practice to let the older children make a summary for their notebooks after their study is completed.

The selection of material.—The record of human progress is a long one and some method of selection must be used in framing a syllabus of lessons. We realise that history is a united whole. We cannot isolate the history of our own country. We know that the growth of our own land has been largely guided by influences from without, hence we must teach something of men and movements in other lands, and of the relation between our country and other nations. We must look on history as a whole, trying to find out what each age and race has contributed to the common stock.

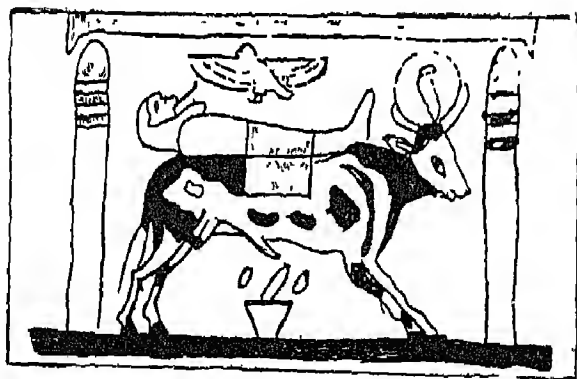
Agriculture, writing, towns, money, ships, trade and the institution of monarchy have been handed down to us by ancient Babylonia and Egypt. Our religion comes from the Jews; from the Greeks we derive our art, philosophy and science, and from Rome we take many of our ideas of law and political organisation. In the Middle Ages, the Church dominated the greater part of Europe, and the events connected with the Renaissance and the Reformation affected much of the Continent. The inventions of modern times are even more obviously of universal importance. The teacher, of course, is well aware of these facts, and in his presentation of the stories of the different ages, he will have in his mind the contribution which the age or the individual of which he is speaking has given to man's general progress. To the child the history may seem at first a series of interesting stories, while to the teacher it is a record of the great high road of human progress,

which the pupil, gradually and almost unconsciously, will come to understand and appreciate. It might be added that, as we are to-day what we are mainly on account of the efforts of our forefathers, any tendency to minimise the work of past ages should be discouraged. It is a natural tendency in young pupils to consider that our own age is much better and wiser than the ages gone by. We hope we are better and wiser, but if so, it is because of the efforts of those who have gone before.

The best introduction to history for young children is the story of primitive man, because our primitive forefathers were finding out what the children themselves want to know. Children readily understand the instincts of hunger for food and the fear of wild beasts, the importance of the discovery of fire and the invention of the potter's wheel. Such stories fascinate

them and, further, they provide excellent scope for handwork.

The study of primitive man in the first stage leads on naturally to that of Egypt, Babylon and Greece in the second stage. There is much in the history of these early peoples that children can appreciate, and it forms a real and valuable background for later studies. In the third and fourth stages of the junior course the syllabus logically and chronologically consists of Roman, British and European history planned in such a way as to cover a two years' course. It is obviously impossible to deal in any detail with British history, and it will not be advisable to attempt the study of the Hanoverian and Modern times in the junior school. A selection of carefully chosen biographies ranging from Horatius to Nelson will provide a satisfactory syllabus of history for children from nine to ten, and ten to eleven years of age.



THE GOD APIS

Painting from a mummy case at Turin

The god carries on his back a mummy, above which the soul of the deceased is represented as a bird.

A FOUR YEARS' COURSE OF HISTORY FOR CHILDREN FROM SEVEN TO ELEVEN YEARS OF AGE

THE complete course of the history lessons dealt with in these volumes is set out on the two following pages for the guidance of teachers when preparing their schemes of work. Each lesson is arranged under the following headings:

Picture Reference.—A small illustration of the appropriate Class Picture in the portfolio is given at the beginning of each lesson, together with its notes and explanations. There are in all 60 Class Pictures in the portfolio dealing directly with history and the teacher will find that frequently more than one picture is suitable for a particular lesson.

Introduction.—Here is set out in detail the teacher's background of the story. The whole series of articles incorporated in these "Introductions" covers a simple course of Ancient and Modern History.

Children's Story.—The story introduced by the Class Picture is related in simple language. It can be told or read to the class at the teacher's discretion, and further details may, if necessary, be added from the matter of the "Introduction." Frequently extra stories are included of use when occasion offers.

Questions and answers on each Class Picture and further information with more illustrations are provided in the Reference Book to the Class Pictures.

Teaching Hints.—A series of notes and hints which will be helpful to the teacher in preparing the lessons follows the "Children's Story." Included among these hints are *Memory Work* and *Exercises*. The former consists of a few brief sentences which may be committed to memory or used for revision purposes, the latter will be found useful for both oral and written work.

Blackboard Sketches.—A whole page drawing of blackboard sketches that may be easily copied is included at the end of the lesson wherever the text lends itself to such illustration. In Vol. II and the succeeding volumes there are useful maps and time-charts.

Handwork.—Simple handwork in various media is provided for the further illustration of every lesson. The handwork for the history lessons in this volume begins on page 101.

Illustrations.—In addition to the Class Pictures, the text has been generously illustrated with pictures from authentic sources. These the teacher will find of considerable service. They illuminate the matter of the text, and will help the teacher to make the lessons real and vivid; many of them can be reproduced in a simplified form on the blackboard, some of them will be useful for copying with the cyclostyle or other duplicating machine. In small classes some teachers will doubtless show these illustrations to the children.

FIRST YEAR'S COURSE OF HISTORY

Chapter

- I Sticks and Stones
- II Man's Best Friend
- III. The Clever River-Men
- IV The Land of No Rain
- V. Cakes Without Currants
- VI The Lake-Men

Chapter

- VII The Land that Never Changes
- VIII Pots and Pans
- IX Man's New Clothes
- X Writing
- XI Pens, Ink and Paper
- XII. Wine and Oil

XIII. Horses and Chariots

SECOND YEAR'S COURSE OF HISTORY

Chapter

- I. Abraham
- II Hammurabi
- III Joseph
- IV. Theseus
- V. Ulysses
- VI. Solomon
- VII. Sennacherib

Chapter

- VIII. Nebuchadnezzar
- IX. Cyrus the Persian
- X. Pheidippides
- XI. Leonidas
- XII Alexander the Great
- XIII A Boy in Athens
- XIV Athens in the Age of Pericles

THIRD YEAR'S COURSE OF HISTORY

Chapter

- I. Horatius
- II. Rome and Carthage
- III. Hannibal and Carthage
- IV. Bread and Games
- V Julius Caesar
- VI. Augustus
- VII. The Romans in Britain
- VIII Constantine the Great

Chapter

- IX Alaric the Goth
- X. Attila the Hun
- XI. Saint Benedict
- XII. The Coming of the English
- XIII. Mohammed
- XIV. Charlemagne
- XV. Alfred the Great
- XVI The Danish Conquest of England

FOURTH YEAR'S COURSE
OF HISTORY

Chapter

- I. William the Conqueror
- II. Life in Norman Times
- III. The Crusades
- IV. Jenghis Khan
- V. Saint Francis of Assisi
- VI. Saint Louis of France
- VII. Edward I
- VIII. Saint Joan of Arc
- IX. Social Life in the Middle Ages

Chapter

- X. William Caxton
- XI. Henry the Navigator Christopher Columbus
- XII. The Birth of the Reformation
- XIII. Three Famous Kings
- XIV. Sir Thomas More
- XV. Saint Ignatius of Loyola
- XVI. The Great Armada
- XVII. Life in Tudor England

AN ALTERNATIVE COURSE FOR
THE FOURTH YEAR

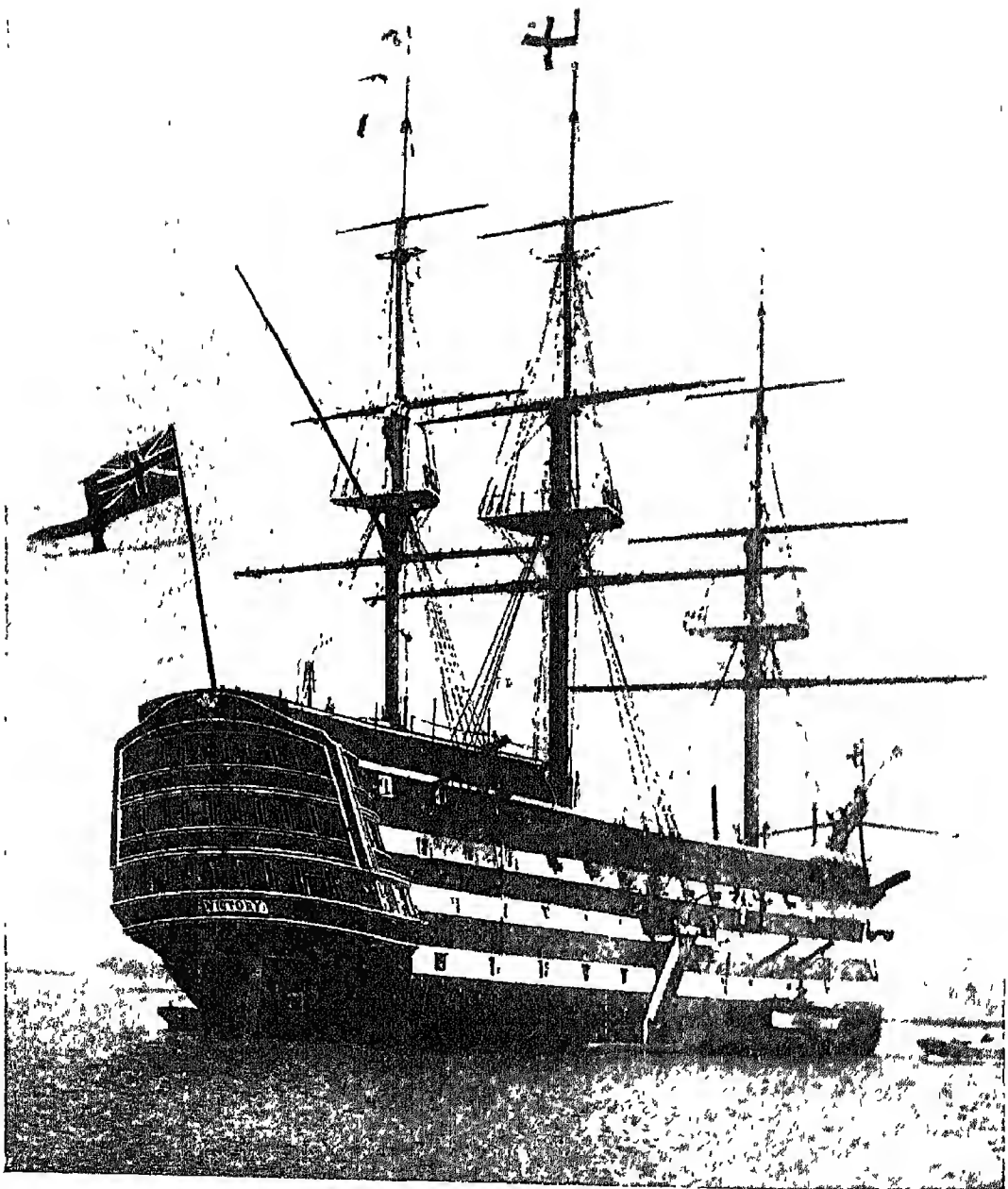
(Twenty turning points in English History --contained in Vol VII.)

Chapter

- I. Saint Augustine and the Monks
- II. King Alfred and the Danes
- III. William the Conqueror
- IV. King John and the Charter
- V. Edward I
- VI. The Monks
- VII. Saint Joan of Arc
- VIII. The Reformation in England
- IX. The Great Armada
- X. James I. and the Pilgrim Fathers

Chapter

- XI. The Restoration and the Glorious Revolution
- XII. Clive in India and Wolfe in Canada
- XIII. The Founding of the U.S.A.
- XIV. John Wesley, the Great Methodist
- XV. Napoleon- Nelson Wellington
- XVI. The Great Reform Act
- XVII. Great Reforms
- XVIII. Victoria, Queen and Empress
- XIX. The World Wars
- XX. The Twentieth Century



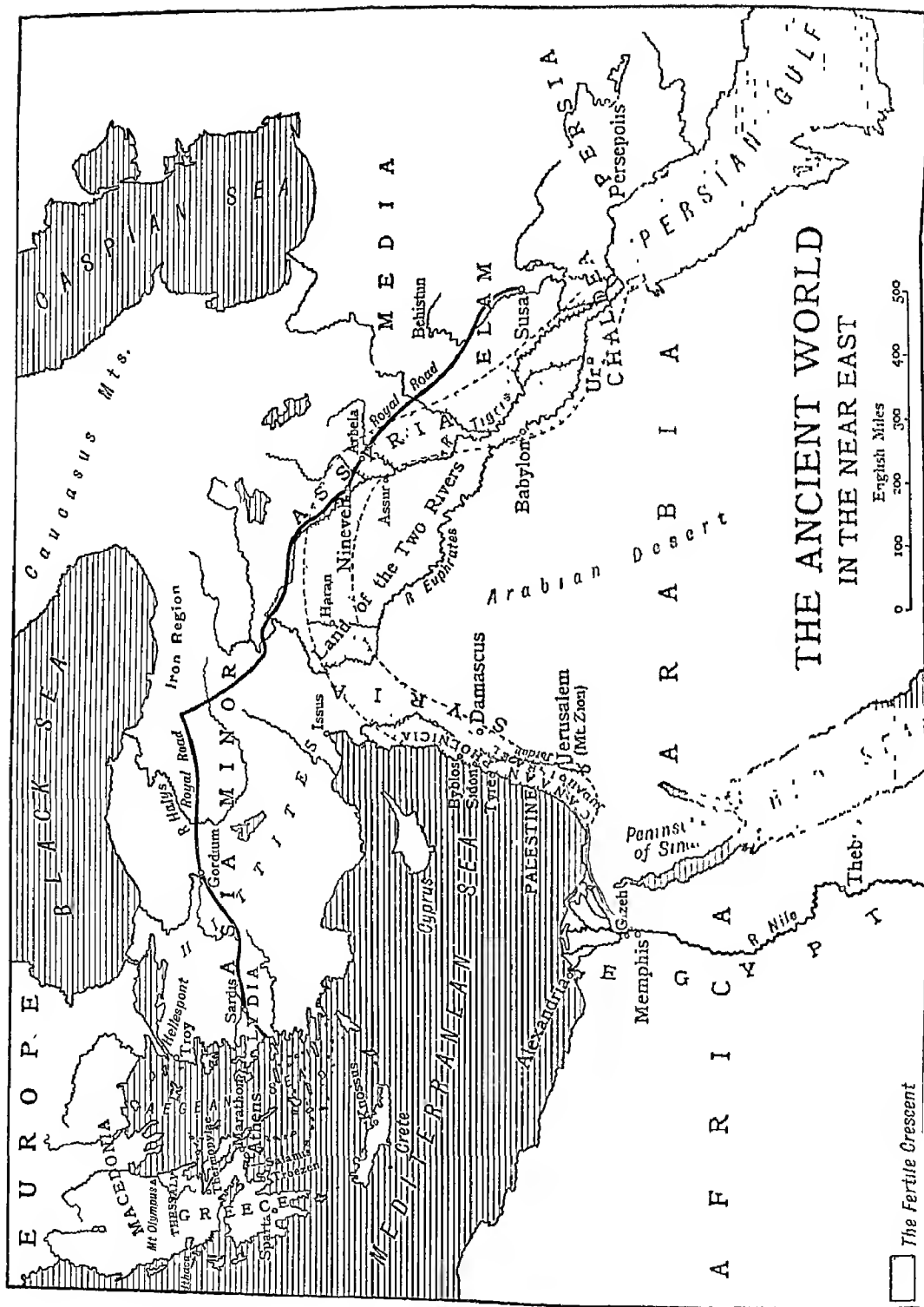
PORTSMOUTH, H M S. "VICTORY"

[Photograph Copyright]

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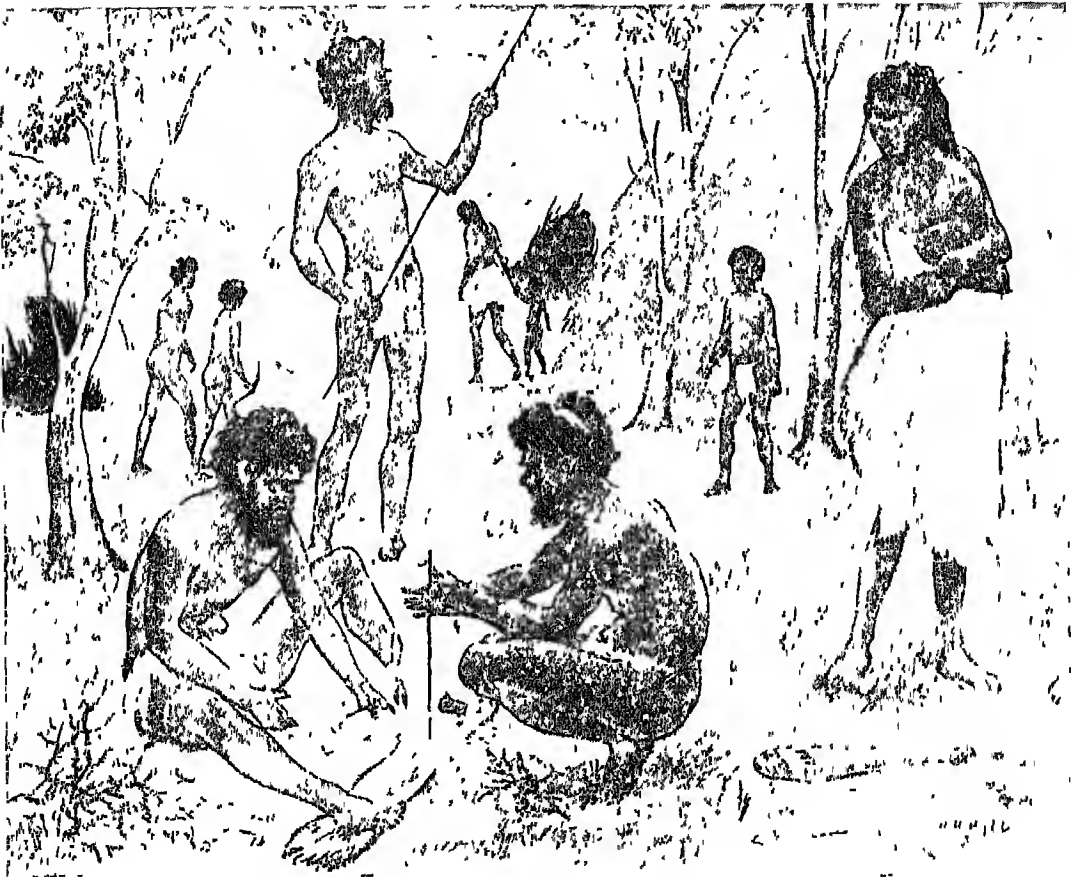
FIRST YEAR'S COURSE
OF
HISTORY

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I. STICKS AND STONES

PICTURE REFERENCE



ABORIGINES MAKING FIRE
(Class Picture No. 1 in the portfolio)

THE Class Picture is adapted from a photograph of Australian Aborigines using a twirl-stick for making fire by means of friction, like the men of the Old Stone Age

INTRODUCTION

The **Stone Age** is the term used by anthropologists to describe the earliest known

stage of human civilisation, when Man had no knowledge of metals, and when his weapons and utensils were formed of stone, horn or wood. The term has no chronological value, as the Stone Age was earlier in some parts of the world than in others, and even to-day races exist who are still in the Stone Age. The first period of human culture is usually subdivided into the *Palaeolithic*, or Old

Stone Age, and the *Neolithic*, or New Stone Age, words which are generally accepted as expressing the two stages of (1) the rough, unpolished, and (2) the finely finished, and polished stone implements

Earliest man was only a savage, little better than an animal. He was small and naked; he had no home and no language; he lived and hunted by himself. His whole life was centred on food, and the obtaining of it occupied all his time. He ate roots, berries, nuts, birds' eggs, shell-fish and any small game he could kill. All his life he had to be on the alert against the attack of wild beasts.

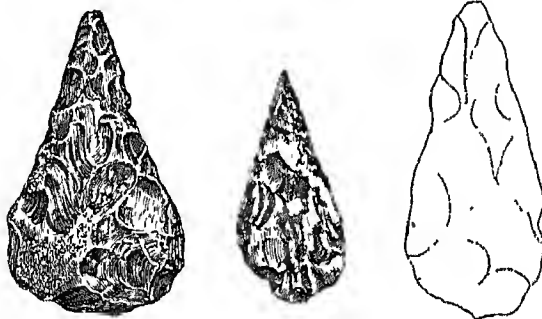
Much of the continent of Europe at the time when these men lived was covered with forests, in which lived bears, wolves, elephants with long shaggy hair, and other wild animals. Countless numbers of wild horses and bison grazed on the uplands. It would seem that such a small helpless creature as man could not survive under these conditions, but man had qualities and characteristics that raised him above the level of beasts. He could "think and find out." He had learnt by experience to walk upright, leaving his hands free to use stones and wooden clubs to repel the attacks of fierce animals. He was learning to combine with his fellows in an attack on wild beasts. Probably several men would unite to set a simple trap for an animal such as the mammoth by making a hole in the ground and covering the opening with branches of trees.

Man's enquiring mind led him to examine the stones he picked up. He found they might be used not only as weapons, but also as tools for cutting up the carcasses of the beasts he slew and for scraping their hides

clean. Moreover, these stones could be chipped into a more serviceable shape. So man became a craftsman and a hunter.

The oldest stone implements, *hand-axes* and *scrapers*, used by primitive man are found in gravel beds of rivers which have long since vanished or changed their courses. Hand-axes were flint pebbles sharpened at the end by being chipped with another stone. As the name implies, they were held in the hand, for man had not yet discovered how to fit them into handles. Scrapers were smaller flints sharpened on their edges. These stone implements date from 100,000 B.C., or even earlier.

Man took thousands of years to make these simple discoveries, and his progress was so slow as to be unperceptible. But now something happened which accelerated the whole process. The climate of Europe grew gradually colder. At last it grew so cold that man must use his wits or freeze to death. (This, the fourth period of the



OLD STONE AGE HAND-AXES

Glacial Epoch, dates from about 50,000 to 25,000 B.C.)

The Cave-Man.—Now the superiority of man's intellect showed itself. He learned to wrap himself in the skins of his prey. He learned to take refuge with his tribe in caves. But, most momentous of all, he learned the use of fire. Man had probably gazed already in fear and wonder at the flames of volcanoes, or at forest fires. But now, in what way we do not know, man himself learned to kindle a fire which would warm the cave, cook the food, and keep away marauding beasts. In some of the great caves inhabited by early man evidences exist of fires which apparently were never allowed to die out for a century or more.

(The date of the discovery of fire is doubtless before 20,000 B.C.)

Cave-man was a hunter depending on the spoils of the chase for his food and clothing. He killed and ate the woolly mammoth, hippopotamus, European bison, reindeer, and most frequently the horse, which at one time roamed in great herds over western Europe. At a great open-air camp at Soultré, in France, where men of the Old Stone Age seem to have had unusual gatherings for many centuries, it is estimated that there are the bones of one hundred thousand horses that had been killed for food. The skins of the slain animals were used for

looking up, saw an extraordinary sight. A procession of painted bison stretched across the ceiling of the cavern. For at least ten thousand years, these pictures, painted by prehistoric men, had been hidden. In other caves, in France and Spain, paintings by artists of the Old Stone Age have been found. Wild horses galloping, bears blundering along, boars, bison and the now extinct mammoth are depicted with amazing vividness and vigour.

Kent's Cavern, near Torquay (England), contains remains of special interest. "The age and appearance of the various strata indicate that it was the home of human



OUTLINE OF WALL-PAINTINGS, ALTAMIRA

(Length about 45½ feet)

covers and clothing, as we know from the discovery of flint skin-scrapers and bone needles.

Some of the cave-dwellers were talented artists. They carved engravings on stone and bone implements, modelled figures in clay, and covered the walls of their caverns with paintings in red, yellow, brown and other bright colours. Nearly seventy years ago (1879) a Spanish nobleman was digging in the floor of a cave on his estate at Altamira, in Northern Spain, when his little daughter, who was playing about, suddenly pointed to the ceiling and shouted, "Toros! toros!" ("Bulls! bulls!") The startled father, on

beings during many ages even to medieval times. In the large chamber near the entrance a series of superincumbent deposits was investigated, consisting of (1) black mould three to twelve inches in thickness; (2) granular stalagmite of from a few inches to three feet in thickness; (3) red cave earth of variable thickness; (4) crystalline stalagmite, sometimes of the great thickness of twelve feet; (5) the deposit known as the Breccia. In the first or uppermost of these, were found a number of relics of the neolithic period with a few articles of bronze and pottery of comparatively recent date, associated with bones of various domestic animals

of existing species. In the third deposit, below the stalagmite, evidences were discovered of a much greater antiquity. Stone implements of the rude palaeolithic type were numerous, and, in lesser numbers, bone implements such as harpoon heads, a pin, an awl, and a needle were found. Associated with these were the bones and teeth of the cave hyena, the mammoth, and the tiger. In the Breccia below the crystalline stalagmite, human flint implements were associated with the cave bear." A most interesting representative collection of finds in the cavern is to be seen at the Torquay Museum; it is also represented in the Stone Age section of the British Museum and in other collections throughout the country. The importance of these discoveries is in the testimony they bear to the immense antiquity of man, to his existence here in palaeolithic times, to his habits and mode of life, and to the character of his four-footed associates.

The *Children's Story* gives some account of Cave-Man and of the discovery of fire. The following story from Greek myths has been included in this *Introduction*, as it will probably be found useful for future reference, or for a "Friday Afternoon Story."

The Story of Prometheus.—No race is found without fire, but nothing is known about the actual discovery of fire among any people, the account given in the *Children's Story* of how Man first learnt the use of it being purely imaginary. It is, however, interesting to note that among the myths of many countries, including Australia, America, New Zealand, India and Europe, there occurs the common belief that fire was stolen, either by a human hero, or by some other creature, and brought to earth

for the use of man. This widely diffused myth that fire was stolen may have its origin in the difficulty of the reproduction of fire, if the savages of one colony let their fire go out, the best thing they could do was to get a light from the fire of a neighbouring group. Hostile tribes would naturally refuse to supply each other with a light, and a high value would soon be set on the possession of fire, making theft the only



PROMETHEUS AND ATLAS

Greek Black figured Vase painting in the Vatican
(6th century B.C.)

Prometheus is lashed to a fluted Doric column, an eagle tears his breast, and blood falls in great drops. The figure painfully supporting a great mass on his shoulders is probably Atlas bearing the world.

method by which to obtain it. In the *Odyssey* we read how, even as late as the Homeric times, men used carefully to preserve their fire: "As when a man hath hidden away a brand in the black embers at an upland farm, one that hath no neighbour nigh, and so saveth the seed of fire that he may not have to seek a light elsewhere."

In the beautiful Greek myths it is related how fire was brought to earth by Prometheus,

the patron and champion of Man Prometheus, whose name signifies "forethought," was one of the Titans, a mighty race of demi-gods, he was the brother of Atlas, who supported the heavens on his shoulders, and of Epimetheus, "afterthought"

During the reign of Zeus, an assembly of gods and men met at Mecone to decide what portions of slain animals the gods should receive in sacrifice. Prometheus divided an ox into two portions; on one heap he put the best parts wrapped in the skin, but with the stomach, which is the worst part, on the top; on the other heap he put the bones, covering them with a layer of fat to look like meat. He then invited the lord of the heavens to choose which heap he would have. Zeus perceived the stratagem and avenged the insult offered him by the champion of the human race by withholding from man the gift of fire. The cunning Prometheus, therefore, stole fire for the use of Man, concealed it in a hollow fennel stalk, and brought it down to earth. The fennel stalk is still used in the Greek islands as a means of carrying a light, the fact of its common use being probably the reason why it found its way into this myth.

The enraged Zeus thereupon chained Prometheus to an icy crag in the Caucasus. There he remained for thirty thousand years, exposed by turns to scorching sun and freezing winds, and tortured by an eagle, who daily devoured his liver, which grew again in the night. Not content with this punishment, Zeus also caused Pandora, the first woman, to be created, who by her charms and beauty should bring misery upon the human race, each of the gods giving her some power by which she was to work the ruin of Man. Zeus presented this dangerous gift to Prometheus's brother Epimetheus, who took her to wife. By her curiosity to see inside a closed jar which belonged to Epimetheus, and which he had been forbidden to open, Pandora let loose in the world diseases and sufferings of every kind.

At the expiration of the thirty thousand years, Hercules, on his way to undertake one of his twelve Labours, killed the eagle which tormented Prometheus and delivered him from his bonds. In return for his release the aged prisoner, grown wise in solitude and misery, gave Hercules good counsel concerning his task, and Zeus consented to pardon the friend of Man. In other versions of the story, Prometheus is often presented in connection with the goddess Athena, with whose assistance he is said to have ascended into heaven to obtain fire, and there secretly lighted a torch at the chariot of Helios, the god of the sun. At Athens, Prometheus had a sanctuary, from which a torch race took place in his honour.

In the illustration Prometheus is represented as a young man with long hair, bound hand and foot to a fluted Doric column. The eagle stands on his body, tearing his breast, while the blood falls in large drops to the ground. Before him stands a bearded figure, probably representing his brother Atlas, who bears the world on his shoulders as a large rounded object.

CHILDREN'S STORY

Long, long ago, so long ago that we cannot count the years, men, women and children were very strange beings. They had no clothes, no houses, no pet dogs and cats, and no sheep, cows and horses. Indeed, they had none of the useful and beautiful things we have to-day.

In those early times there were no busy cities, no railways, factories or fields. Much of the land was covered with dense forests, in which lived bears, wolves, elephants with shaggy hair and other wild animals. On the grassy uplands roamed great herds of wild horses, bison or wild cattle, and deer.

The men often had to fight some of these animals. They would throw stones at them, or hit them with a large stone or a wooden club. The people lived in caves where the wild beasts could not easily get at them. For food they had berries, nuts, birds' eggs

and shell-fish. Sometimes they caught a rabbit or killed a bird. Then they had meat, but they had to eat it raw, for they did not know how to make a fire and cook meat.

You see, then, that Cave-Man lived very much like a bear or a wolf. But Cave-Man had better brains than a bear, or a wolf, or any other animal. He could think and find things out. He found out how to take the skin off a bear and wrap it round his body to keep himself warm at night. Now, if your little dog is cold he does not know how to take the skin off a rabbit and put it round him. The brain is the most wonderful part of Man. He can *think and find out*.

Hundreds and thousands of years went by. Man went on thinking, and he found out many important things. We do not know exactly how he found them out, but these stories will tell you something about them.

He found he could make a flint stone with sharp cutting edges by chipping it with another stone. A large flint with sharp edges was very useful. It was Man's first tool, though he did not know how to make a handle to it. With it he could shape a thick branch of a tree into a club and he could cut sweet roots for food.

One day, we may suppose, when Man was out hunting, he saw a very strange sight. Something bright and red and crackling was eating up the forest trees. It came nearer and nearer and he felt that it was hot. Then Man was afraid and ran away. Can you guess what he had seen?

It was fire. For a long time Man did not see fire again. Then one day in his cave he was rubbing together two dry pieces of wood, when he felt that they were growing warm. This was strange to him, so he went on rubbing and rubbing, making the wood hotter and hotter. Presently the wood began to burn, and Man found out that in this way he could make fire for himself.

There are men still living who make fire with pieces of wood. Have you ever heard of the country called Australia? I am sure the boys have, for some of England's best cricketers go to far-away Australia to play

there, and sometimes a team of Australians comes to England to play. The Australians are mostly British, but in their land are some native people who live in much the same way as the men of long, long ago once lived in Europe.

The picture shows us some of these men. One is using a twirl-stick to make fire. He puts one end of the stick in a small hole in a piece of wood. Then he rolls the stick in the palms of his hands so that it twirls first one way and then the other. The point of the stick becomes hotter and hotter, till at last the dust rubbed off in the hole becomes so hot that it burns. The native then lights a little dried grass and soon has a fire.

Some man of long ago found out another way of making this wonderful fire. One day, we may imagine, he picked up a kind of stone he had not seen before. It was really a small lump of ironstone. It felt very heavy, so he thought he would chip a piece off it to see what it was like inside. He hit it hard with his flint tool and jumped with surprise to see sparks fly out. He hit the iron with the flint again and there were more sparks. They looked very pretty and he called his little boy to come and look too. There was some dry moss near by, and suddenly the sparks set the moss on fire and made a blaze. How wonderful it was! Man had found out another way of making fire.

Now Man could keep warm in his cave by building a roaring fire near the entrance. Fire, too, made him safe at night, for wild beasts are afraid of it. For dinner he could have roast meat, which was more pleasant than raw meat. He could broil his meat on burning logs, or roast it on a stick planted sloping over the fire. Sometimes he might cook it in the hot ashes, as Boy Scouts bake potatoes. In time Man found out how to make an oven by digging a pit in the ground and lining it with large stones. In the pit he made a fire, and when the fire had burnt out he put his meat on the hot stones and covered the top of the pit with branches and leaves.

Some of these Cave-Men painted pictures on the walls and ceilings of their caves. About seventy years ago a Spanish gentleman and his little daughter went to a large cave where the early men once lived. The gentleman was busy digging in the cave to see if he could find any of the old stone tools left by the Cave-Men. Suddenly his daughter shouted, "Toros! toros!" (These are Spanish words for, "Bulls! bulls!") The father was startled and looked up to see his daughter pointing at the ceiling. There he saw some wonderful pictures of bulls which the Cave-Men had painted.

In other caves in France and Spain more pictures of animals painted in red, yellow and brown have been found. If you visit these caves you can see paintings of wild horses galloping along, huge mammoths with shaggy hair, reindeer and bulls. How wonderful it is that Man of so long ago found out how to paint such pictures!

TEACHING HINTS

1. Long, long ago.—It is of little use to express *time* for young children in figures. Two thousand means much the same to them as two hundred thousand, and one can speak only of *long, long ago*, or *once upon a time*. The children should, however, clearly understand that the story of early Man is substantially true; it is not a *fairy tale*.

A great deal of time can easily be wasted on the subject of early Man, as children will be very ready to speculate on his state. The main point to bring out is that "Man could think and find out."

See that children clearly understand that the process of "finding out" extended over an enormous period of time; that the "finding out" did not necessarily happen in England, or in any other *particular* place, that Man was scattered over many parts of the globe.

2. Savage Life.—There are many tribes of people living to-day who depend mainly

on wild food. In tropical forests savages may easily live on what nature provides, like the Andaman Islanders who gather fruits and honey, hunt wild pigs, and catch turtle and fish. On the inhospitable island of Tierra del Fuego the natives feed mostly on shell-fish, so that in the course of ages shells and fishbones have formed long banks near the shore. Such rubbish heaps, or "kitchen middens," are found here and there all round the coasts of the world marking the ancient resorts of such tribes. Among the "kitchen middens" on the coasts of Denmark, archaeologists search for relics of the people of the Stone Age, who led a life like that of the Fuegians.

3. The Discovery of Fire.—Children find it hard to realise that safety matches were unknown until quite recent years. Refer to the horse's shoe striking out the spark from the flint as it trots along the road, and speak of the flint and steel as used before safety matches. Note, also, the pocket-lighter with its steel wheel, flint and petrol. Refer to the far distant time before the discovery of metal, and demonstrate how heat is produced by rubbing a piece of wood on the table, or school desk. Children will readily supply further examples of the phenomenon of heat produced by friction.

Let the children twist a lead-pencil in the palms of the hands to imitate the action of the twirl-stick. Point out the continent of Australia on a map of the world.

Draw on the blackboard a sketch of the ancient fire apparatus found in an Egyptian tomb. The bow-drill is similar to that still frequently used by carpenters and metal-workers at the present day. The drill-stock, A, is held upright in the left hand by the hollow drill-head, B, which fits on the top of the stock. The fire-stick, C, fits into the hollow at the bottom of the stock. The stock is made to revolve rapidly by the twisted cord of the drill-bow, D, when the latter is moved quickly forwards and backwards. The fire-stock, E, is a piece of soft wood showing marks of fire. The action of

the bow-drill can be readily demonstrated by making a small bow from a bent stick or piece of cane, and then twisting the string round the middle of another straight stick, as in F.

4. Memory Work.—(a) Once upon a time Man lived in a cave like an animal (b) Man was more clever than an animal for he could think and find out (c) Man found out how to make fire by rubbing two sticks together, and by striking ironstone and flint together. (d) Man could roast his meat by the fire (e) Some of the Cave-Men painted pictures of animals on the walls of their caves

Exercises.—(a) In what ways was Man of long ago like an animal? (b) In what ways was Man of long ago different from an animal? (c) What were the first clothes that Man wore? (d) Why did Man once eat his meat raw? (e) Tell of anything that you have noticed that makes warmth by rubbing. (f) Why do we sometimes see sparks fly off from a horse's hoofs when it is running? (g) Name two ways in which fire was useful to Man. (h) A small boy of to-day sometimes tries to kill a bird in the same way as the men of long ago. What does the boy do? (i) If you go into your back-yard with a stick in your hand and see a rat, what will you probably do?

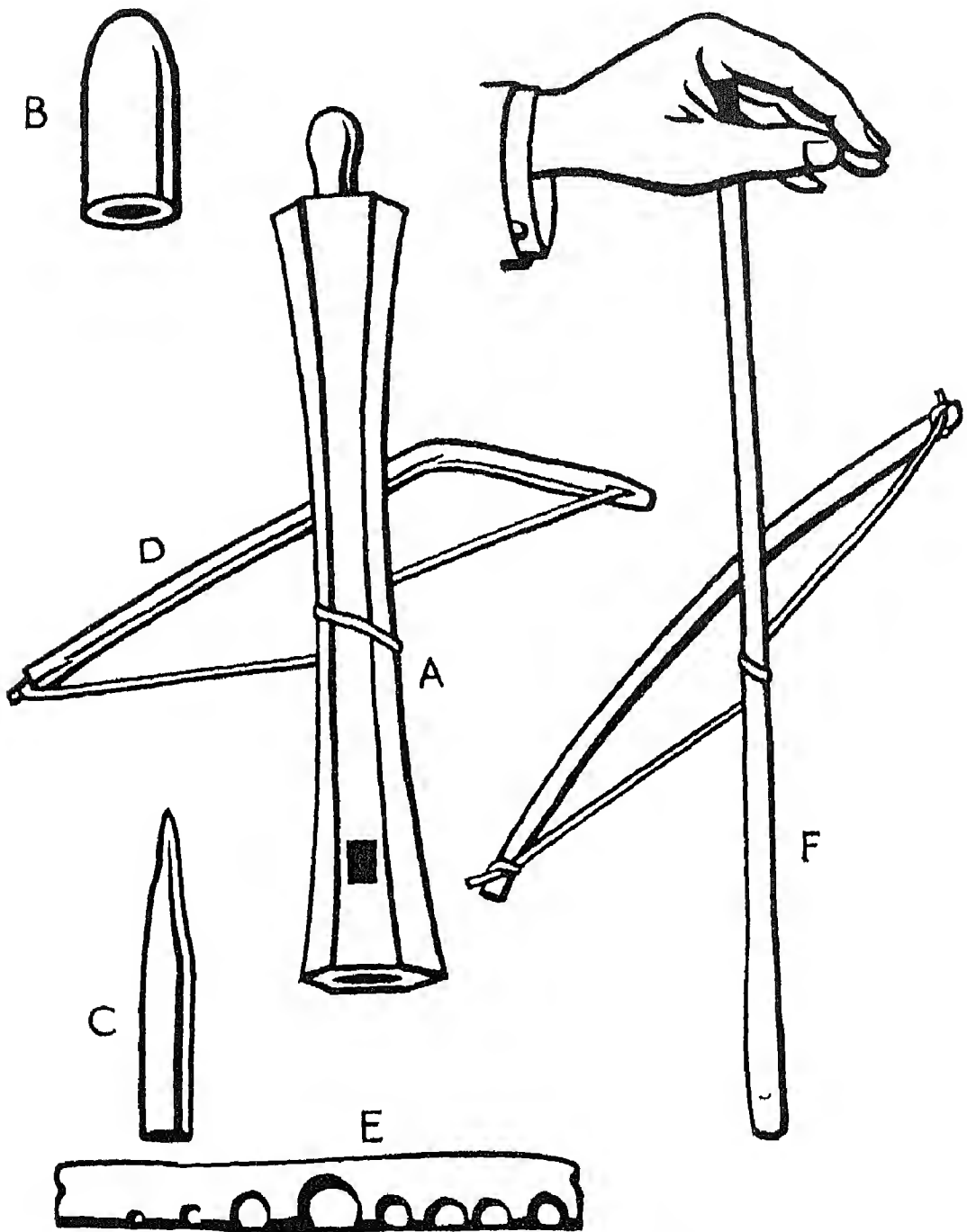


(After Breuil)

PART OF THE FRIEZE PAINTED ON THE WALL OF A ROCK SHELTER AT ALPERA, SOUTHERN SPAIN

Among the animals depicted are goats, ibex, stags, fallow deer, oxen, horses, wolves and an eland crossing the field in characteristic attitudes. A troop of wild Spanish goats is seen

SKETCHES FOR THE BLACKBOARD



ANCIENT FIRE APPARATUS FOUND IN AN EGYPTIAN TOMB

II. MAN'S BEST FRIEND

PICTURE REFERENCE



CAVE-MAN MAKING FRIENDS WITH A YOUNG WOLF
(Class Picture No. 2 in the portfolio)

INTRODUCTION

THE Neolithic or New Stone Age dawned in Europe about ten thousand years ago. The melting of the ice-fields of the glacial epoch slowly refilled the ocean, and the map of Europe took on its present general shape. Vast forests, the outgrowth of a temperate climate, began to cover the

treeless wastes. The woolly rhinoceros, woolly mammoth and cave bear became extinct; the hippopotamus, elephant and other large mammals found their way to tropical zones; the reindeer retreated northward, together with its hunters.

The men of the South, the so-called Mediterranean race, began to spread over the depopulated regions of the North. This

race of short, dark-haired people had made much advancement in civilisation. They depended for food upon fishing rather than upon hunting; they had learned to domesticate animals; they had developed a primitive agriculture. They had greatly increased the usefulness of stone tools and weapons, and they had discovered how to make the bow with arrow-points of sharp flints. They knew how to make dwellings for themselves, how to make sunbaked pottery, and how to plait and weave.

Remains of Neolithic Man's life are discovered widely distributed throughout a large part of Europe. Near watercourses, lakes and inlets of the sea, early communities fixed their settlements. The earliest of these settlements are found on the shores of Denmark, where the wattle huts of prehistoric fishermen and hunters stretched far along the sea beach. The fishermen gathered myriads of oysters and fished from rude boats, the hunters followed the wild boar and wild bull, and brought down waterfowl in the marshes. The refuse of their meals, bones and oyster shells, are gathered in ridges hundreds of feet long parallel with the shore-line. These heaps are to-day a storehouse of remains from the life of these prehistoric Norsemen. Here are found pieces of burnt clay and broken pots, which indicate that these men had learned how to make clay vessels by hardening with fire. Here, too, are found heavy stone axes, which have been ground sharp upon a whetstone. Besides axes, these men had chisels, knives, drills, saws, mostly made of flint, but sometimes of other hard stone. By lashing leather thongs round the axe-head, or by boring holes through the stone, Man fastened handles to his axes and hammers. With these valuable tools he could now cut down trees and build himself dwellings. Many traces of early wooden dwellings have been found in the Swiss Lakes. (These Lake Dwellings are the subject of Chapter VI.)

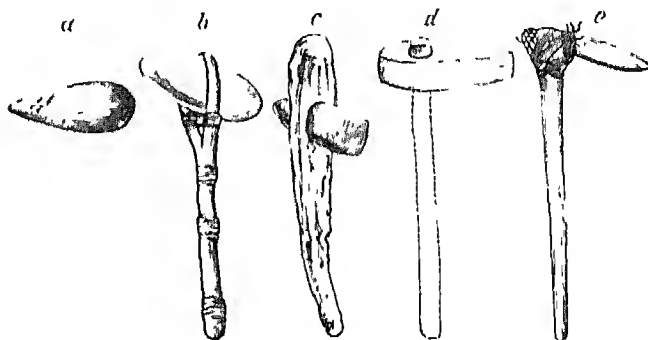
The illustration shows various primitive methods of fixing celts to wooden handles. The forest Indians of Brazil do this simply by selecting a suitable water-worn pebble, rubbing one end down to an edge, and binding it in a cleft stick, as in *b*. Another rude method of fixing a handle to form a woodman's or warrior's axe, was to stick a celt into a club, such as *c*, which shows such a tool or weapon dug out of an Irish bog. A more advanced method was to drill a hole through the stone to take the handle, as in *d*. The canoe-builders of Polynesia made a sort of carpenter's adze by binding a stone blade with the edge across in the handle, as in *e*.

This chapter of the *Children's Story* suggests how Neolithic Man may have domesticated the dog, and how the dog gradually became "Man's best friend."

CHILDREN'S STORY

As the years went by Cave-Man found strange things happening in that part of the world we now call Europe. The weather grew colder and colder. At last it grew so cold that a great part of the land was covered with ice.

Many of the forests were frozen over. Some of the animals died from the cold,



STONE AXES, ETC.

a—polished stone celt (England); *b*—pebble ground to edge and mounted in split handle (modern Brazil); *c*—celt fixed in wooden club (Ireland); *d*—stone axe bored for a handle (England); *e*—stone adze (modern Polynesia).

but many wandered towards the South to find homes where it was warmer.

Where the ice had not reached, Man lived in his cave with his warm skins and hot fires. Luckily for him, one animal, the reindeer, can live where it is very cold. There were plenty of reindeer at that time and Man hunted them for food.

Still more thousands of years went by. Slowly the ice melted and the sun shone more strongly. After a long, long time, none of the great *ice cap* was left in Europe. Forests once more grew over much of the land. Many wild animals never came back, but there were still the bear, wolf, wild ox, wild boar and deer for Man to hunt.

A new people from the warm South now wandered into Europe. Man from the South had found out how to do many more things with sticks and stones. He had found out how to fasten a large sharp stone, or *celt*, to a wooden handle and make an axe.

Have you ever tried to fasten a stone to a wooden handle? It is not very easy to do, and Man must have tried all sorts of ways of fixing the stone before he made a good axe.

Man had learned how to make a spear with a sharp-edged flint at one end. Man, too, had found out how to make and use a bow and arrows.

You can make a bow and arrows quite easily, but then you have been told how to do it. But the Man who first made a bow had no one to show him how it was made. He had to find out for himself how to bend a stick, and how to fasten a strip of raw hide for the string. Man made arrow-heads of small sharp flints and fastened them to his arrows with hide.

With his axe and his spear and his bow, Man the Hunter could kill plenty of animals and birds for food. He could thus get skins to keep him warm and protect his body from thorns and prickles. Sometimes he had more meat than he could eat. The bones and odd pieces of meat he threw on the ground of his cave.

One day, we may suppose, as Man sat half asleep after a meal, he saw Wild Dog

creep out of the wood and come quietly up to see what Man had left from his meal. Man sat very still. Wild Dog came nearer and nearer. Man took a stick and put a piece of meat on the point of it. Then he very, very quietly held it out to Wild Dog. At first Wild Dog did not know what to do. He looked this way and that way. He crept a little nearer to the meat and stopped, and looked round again. Then he made a run, seized the meat, and slipped back into the wood.

The next day, and the next, Wild Dog came again at meal-times. Man and his family liked to see him coming and held out bits of food in their hands for him to eat. At last Wild Dog became so tame that he lived with Man in his cave.

Years and years went by and Man made friends with Wild Cow, and Pig, and Goat, and Sheep. They all came to live near him and he took care of them. They gave him milk, meat and wool. Man who kept sheep and goats and cows was quite well off. He could now have plenty of food without going to hunt for it in the forests. He had more time to think and more time to find out new things.

Later in this book we shall read how Man left his cave and built himself a house. To keep his cows and sheep and pigs safe from wild animals he made a sort of farmyard by building walls of earth. Every night before the sun went down he and Tame Dog drove the animals into the farmyard. Tame Dog only pretended to sleep at night, for at the least sound of a creeping footstep up he would spring and bark to warn his master.

When Man went hunting in the woods he took Tame Dog with him and taught him how to pick up the rabbits and birds which Man shot with his bow. When they went back to the cave the children patted Tame Dog, and he licked their hands and then lay down before the fire to sleep.

It took a very long time for all these things to happen, but, in the end, Wild Dog became Tame Dog, and Man called him *his best friend*.

TEACHING HINTS

1. The Taming of Wild Animals.—Children will readily understand how wild animals and birds can be tamed by the offer of food. The feeding of pigeons in the parks and about public buildings will be familiar to many town children. Country children will be able to recount how tame the robins and other birds are in winter time, when food is scarce.

The horse was one of the last animals to be domesticated. It was not till the time of the Assyrians that the horse was largely used in warfare. It should be noted, too (for the point is likely to arise in the class),

Ages of Europe, when knights still smashed helmets in with their heavy maces. The modern English policeman has a truncheon. The club still survives in the mace as a symbol of power when it is carried by a Sovereign as an emblem of royal authority, or when it is laid on the table during the sitting of Parliament.

3. Axes.—The word *cell* (pronounced *selt*) used for the various chisel-like, stone instruments of ancient tribes is taken from Latin *cellis*, a chisel. (The name of the implements called *celts* has nothing to do with the name of the people called *Celts*, or *Kelts*.) A stone celt put into a handle made an axe. Various methods of fixing celts in handles are illus-



REINDEER OF THE LUNDRA

that the domestic fowl, which came originally from India, was not introduced till the time of the Persians.

2. Clubs.—Among the simplest of weapons is the thick stick or cudgel, which, when heavier, or knobbed, is converted into the club. (Hercules is generally pictured carrying a huge club on his shoulder.) The club could be hurled by the hunter in the same way as a Zulu to-day can bring down an antelope at a surprising distance with a throw of his knob-kerry. The old Egyptian fowlers may be seen in pictures flinging flat, curved sticks into the midst of a flight of wild-duck. The Austrahans make a "come-back" boomerang. Used as a weapon, the club passed on through the centuries to the Middle

trated on page 25. Get the children to imagine the difficulties of finding out how to make serviceable stone tools and weapons. Encourage some child to make a stone axe at home and bring it to school. Some boy may have a bow and arrows at home, or, in any case, a simple one can be readily made in class.

4. Reindeer.—If the children have already learnt the story of the Eskimo, they will remember that these people of the cold North still hunt the reindeer. Certain tribes, e.g., the Laplanders, have domesticated the animal. This affords a striking illustration of the way in which some tribes have changed their habits from hunters to herdsmen.

5. Memory Work.—(a) From sticks and stones Man found out how to make an axe, a spear and a bow (b) Then Man the Hunter could kill plenty of animals and birds for food (c) Because Man could think, he found out how to make friends with Wild Dog, and with Wild Cow, Pig, Sheep and Goat. (d) Tame Dog became Man's best friend, and went with him to look after the cows and sheep or to hunt in the forest

6. Exercises.—(a) When the ice cap covered much of Europe, how did the Cave-Man get food? (b) How did the Man in the picture make his axe? (c) How can you teach a dog to do tricks? (d) How did Man become better off when he had found out how to make a bow? (e) Why do we call the dog "man's best friend"? (f) Tell as many names as you can of animals that Man has tamed



ESKIMO HATCHETS, HAMMERS, AND MALTOCKS OF BONE
(British Museum).

III. THE CLEVER RIVER-MEN

PICTURE REFERENCE



Ploughing and Sowing in Egypt during the Pyramid Age

THE Class Picture (No. 3 in the portfolio) is adapted from the above scene painted on an Egyptian noble's tomb. There are two ploughmen, one driving the oxen and one holding the plough. The wooden plough was derived from such a wooden hoe as is seen in use by the man in front of the oxen. Imagine the hoe reversed with the handle extended to make the beam of the plough, and two short handles attached for the use of the ploughman. The man with the hoe breaks up the clods left by the plough, and the sower scatters seeds from a curious bag which he carries before him.

INTRODUCTION

The Children's Story in this lesson deals with an imaginary account of the first cultivation of grain.

Perhaps the most revolutionary discovery made by early Man was the art of agriculture.

The assurance of a regular food supply is the basis of the settled state of society which is the first step to civilisation. The antiquity of agriculture is shown by the high degree of civilisation attained by the ancient Egyptians and Babylonians, with their temples and palaces, governments and armies. Such stability could have been reached and maintained only by the practice of agriculture through many centuries. Exactly when and how the discovery of the cultivation of crops was made is not known. It would seem that both barley and wheat grew wild in the Nile Valley, and early settlers may have used them for food when they first established themselves in the land. In the Land of the Two Rivers wheat was grown about the same time that it was cultivated in Egypt. Probably agriculture reached Europe from the East by way of the Danube basin, and thence spread down the Elbe and the Rhine valleys westwards into France and Belgium.



a—Australian Digging stick, b—Swedish Wooden Hoe or "Hack."

The beginnings of agriculture must have come naturally to the rude savage, skilled as he was in the habit of the food-plants he gathered. He must have known well enough that if seeds and roots are put in a proper place in the ground they will grow.

Much has been learnt as to the invention of agricultural implements by noticing how rude tribes till the soil. The Australian Aborigine carries a pointed stick to dig up eatable roots. It is likely that such a pointed stick as was used to dig up roots, was also the first instrument used for digging up the soil and planting roots and seeds. An improvement in the pointed stick was a flat-bladed tool like a

spear, or paddle, the ancestor of the modern spade. The hoe is derived from the pick or hatchet. The primitive hoe, or "hack," that was used in Sweden until modern times, was nothing more than a stout stake of spruce-fir with a bough sticking out at the lower end cut short and pointed. A heavy wooden hoe of this kind was dragged by men through the ground, thus ploughing a furrow. Later, this primitive plough was made in two pieces with a handle for the ploughman and a pole for the men to drag by. Finally, two oxen were yoked in instead of men.

The accompanying illustration shows plough-

ing as it is practised in parts of Palestine to-day.

The monumental records of Egypt are the source of the earliest information on agriculture. The Egypt of the Pharaohs was a land of great estates farmed either by tenants, or by slaves, or by labourers under the supervision of stewards. Egypt owed its fertility to the periodical inundations of the Nile, the water from which was distributed by canals over more distant parts of the valley. After the subsidence of the floods, the land was ploughed by oxen yoked to simple wooden ploughs, the clods being afterwards levelled by hand with wooden hoes. The seed was pressed into the soil by the feet of sheep driven over the fields. At harvest the corn was cut high on the stalks with short sickles and put up in sheaves, after which the grain was trodden out on threshing floors by the hoofs of oxen. Women did the winnowing by tossing the grain into the air with small wooden boards, so that the chaff was blown away by the wind.

The agriculture of the Land of the Two Rivers also depended largely on irrigation, and traces of ancient canals can still be seen in Babylonia. Both Babylonia and Assyria were large producers of cereals, but little is known of their methods of agriculture.



PLOUGHING IN PALESTINE

The illustration of Greek agriculture is interesting, for, although it depicts a scene many centuries later than that shown by the Egyptian picture, the methods employed are much the same.

THE CHILDREN'S STORY

Every boy and girl knows that bread is made from flour. Flour is the fine meal made by grinding wheat between great stones in a mill. Sometimes a sort of bread is made from the flour of barley, or rye, or maize. All these plants—wheat, barley, rye, maize—are grasses.

Who first found out how to crush seeds of grasses and make the flour into bread? Nobody can answer this question, because nobody knows. The people who lived long, long ago could not write, so that we have no books to tell us how bread was first made.

Perhaps this clever thing was found out by Woman. We may imagine that while Man was out hunting with Tame Dog, or fishing, or minding his sheep, Woman picked grass seeds. She made baskets of woven grass in which to carry the seeds to the cave. Then she placed a few seeds on a large flat stone, she took another flat stone in her hands and moved it backwards and forwards on the seeds, crushing them into flour. With water, and perhaps with a little honey, she made small flat cakes, which she baked on hot stones taken from her fire.

We do not know how Woman learned to sow seeds and grow plants, but it may have happened in some such way as this. Sometimes Woman spilt seed from her basket on

to the ground. One day she saw that the seeds she had dropped were growing. Every day she watched these tiny plants and she cleared the stones from them. She showed Man her growing plants and they laughed together as they looked at them.

The grass grew taller and taller, and when the seeds came Woman gathered them in her basket. Some she made into bread and some she planted. She cleared a piece of ground from weeds and stones, and grew her seeds there.

Years and years went by. Man and Woman had learned much more about growing grass seeds for making bread. Man cut a thick stick with a crook at one end, and with it he broke up the hard ground to make it soft. This was Man's first hoe. Then he threw his seeds over the broken ground and trod them into it.

In time he found out that his grass plants liked the sun and water, and that the best place to grow seeds was in a warm, damp spot. So he went to live on a flat piece of land down by the river.

Every year, in this land by the river, something strange happened. Man saw the water in the river begin to rise. It came rushing along, rising higher and higher, till it flowed over the banks and flooded the ground where he was going to sow his seeds. He did not know why the water came rushing down and flooding his land, for it was not raining where he lived. But we know that far away on the mountains where this same river begins there is snow, and when the hot summer sun melts the snow into water it comes rushing down so fast that it floods the land. On the mountains, too, it some-



GREEK AGRICULTURE

From a black figured Attic Cup in the Louvre (Sixth century B.C.)

The ploughman treads on the plough to drive it into the earth. In his left hand he holds the handle, which is wrongly represented behind his leg. One man breaks up the clods with a pick and another has a seed-basket. In front is a mule.

times rains for weeks together, and this rain also helps to fill the great river.

Man found that when the water in the river stopped rising, and the floods had all gone away, there was a layer of fine mud soil left behind all over his land. In this soft mud soil he sowed his seeds. They grew so well that the grass seeds of wild wheat and wild barley were now much finer than they once were, and he could get more flour from them.

Then Man wanted to plant more and more seeds, but it was hard work for him to hoe all the land. So he took a long thick stick with a stout crook at one end; he fastened it to the horns of his tame ox and let the ox pull his crooked stick over the ground. Man now had a plough. More years went by, and Man made a better and stronger plough, which needed two oxen to draw it along. Then, when he had scattered his seed, he drove his sheep over the field so that their feet should press the seeds firmly into the soil.

There are many parts of the world where it is sunny and where rivers flood the land every year. It was to these places that men went to live and where they grew wheat and barley. We call these men the River-Men. In the picture we see some River-Men of long, long ago working in the fields. The land where they worked is called Egypt, and the river that floods the land every year is called the Nile. You will see that the men wear little clothing, for Egypt is a hot land all the year round. Very little rain falls in that land, so they do not need overcoats or umbrellas.

There are two ploughmen, one driving the oxen and one holding the plough. The man with the hoe breaks up the clods left by the plough, and the sower scatters the seeds from his bag. After the sower come the sheep treading the seeds into the ground. Notice the long twisted horns of the sheep.

This picture was painted by the River-Men on the wall of a tomb where a rich man was buried. It is thousands of years old, but it shows us exactly how the River-Men grew wheat and barley.

TEACHING HINTS

1. Honey.—Most children do not know that cane and beet sugar are products of modern times. Most of them will be puzzled to explain how people of earlier times sweetened their food. There is a short account of honey and sugar in the section on "General Knowledge," Vol. VI.

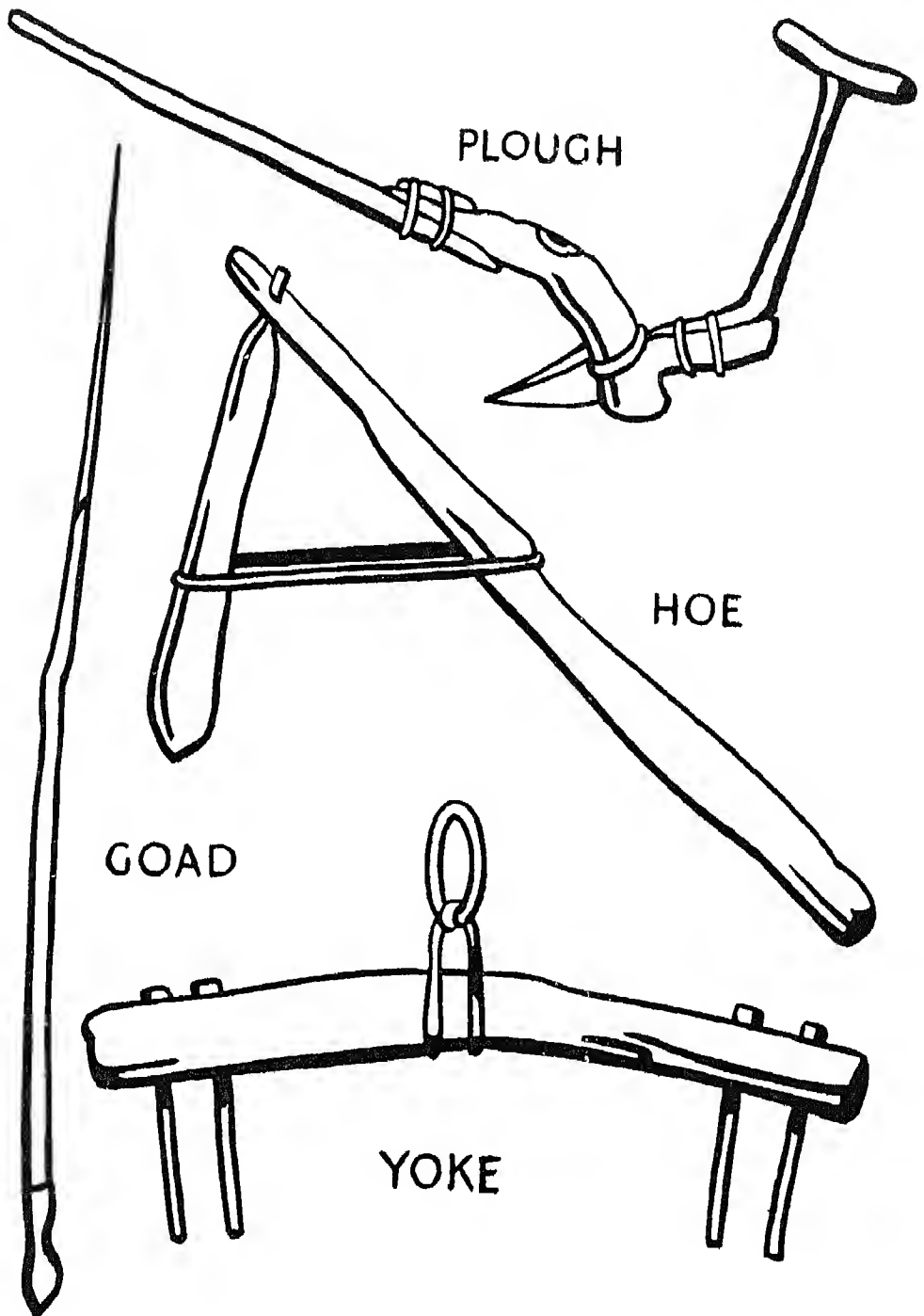
2. Hoe.—An Egyptian hoe is illustrated for re-drawing on the blackboard. Apart from the form of this primitive tool, it is important to point out that hoes of this kind have been found in Egyptian tombs. This fact will help children to realise still better that these stories of long ago are true; they are not fairy stories.

3. Map.—Draw on the blackboard a sketch map of the Nile (page 36) and point out the mountains on which lies the snow. The subject of the inundations of the Nile is dealt with further in the next chapter, hence it will be useful to draw the map on brown paper and keep it for reference.

4. Plough.—The plough in the Egyptian scene should be compared with that in use in Palestine at the *present day*. (See blackboard illustration.) This, too, is an instrument of the simplest construction. It is so light that the ploughman carries it on his shoulder to the field, where it is easily drawn by two small oxen. The plough consists of a crooked piece of wood armed with an iron point, or share. It has one handle, which the ploughman holds in his left hand. In his right hand he carries a goad, or long rod with a sharp point, with which to goad on the animals. The yoke is a light beam of wood about 4 feet long, with sticks about 10 inches in length to lit over the necks of the oxen.

5. Oxen.—English children are generally surprised to learn that oxen are used in many parts of the world at the present day.

SKETCHES FOR THE BLACKBOARD



ANCIENT AGRICULTURAL IMPLEMENTS

for agricultural and draught purposes. A team of oxen for ploughing and other tasks was used in the 20th century on Lord Bathurst's estate in Cirencester. For further notes on other draught animals used by man see "General Knowledge," Vol. VI.

6. Sowing.—Country children will be familiar with modern methods of sowing seeds with a "seeder," and rolling the ground. These will enjoy making comparisons between modern and ancient methods. Reference might here be made to the scriptural parable of the Sower who scattered the seed by hand. Lines from the well-known hymn, "We plough the fields and scatter," also provide a suitable illustration of the primitive method of sowing seeds. For town children it will be advisable to let them assist the teacher in planting a few grains of wheat, or barley, in a box of soil, so that they will understand why sheep were used to tread the seeds into the soil.

7. Summary.—Children delight in helping the teacher to prepare a blackboard summary of the lesson. A useful and pleasing plan is to print in capitals the word EGYPT in column form, and with the children's assistance construct sentences bearing on the lesson. By judicious selection of the children's answers (and some assistance from the teacher) the sentences can be arranged to summarise the story in proper sequence.

Every year the river Nile floods the valley land of Egypt.

Good soil for plants is brought down by the floods

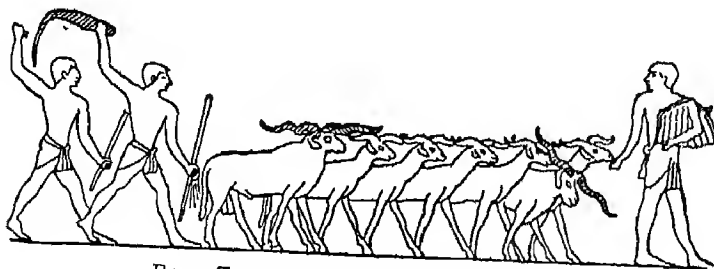
Year after year the River-Men planted their seeds in this river mud

Ploughs of ancient days were thick crooked sticks.

The picture of the ploughman was painted on a tomb many thousands of years ago.

8. Memory Work.—(a) The men of long ago found that wheat and barley grew best where there was plenty of sun and water. (b) Thousands of years ago men grew wheat and barley in Egypt. (c) Every year the river Nile floods the grain fields of Egypt and leaves a layer of mud in which plants grow well. (d) Oxen drew the wooden plough, and sheep trod the seeds into the soil.

9. Exercises—(a) Why do we not know how bread was first made? (b) Where do the weeds come from that grow in our gardens and fields? (c) Why did many men choose to live in the land of Egypt? (d) Why does the river Nile flood the land every year? (e) How did the River-Men of Egypt sow their seeds? (f) What did the River-Men use to sweeten their cakes? (g) How do we know that the story of the River-Men of Egypt is a true one?



RAMS TREADING SEED INTO THE GROUND
From an old Egyptian picture carved in stone.

IV. THE LAND OF NO RAIN

PICTURE REFERENCE



AN EGYPTIAN SHADOOF
(Class Picture No. 4 in the portfolio)

THE Egyptian Shadoof (No. 4 in the portfolio), the oldest of well sweeps, has been in use for many centuries for irrigating the fields of Egypt

The *shadoof*, or water-lift, consists of a pole so fastened that it can swing on the top of a post. On one end of the pole is hung a closely-woven basket, or a leathern or

earthen pot, with which to scoop out the water, at the other end is fastened a heavy lump of Nile mud to counterpoise the weight of the water. Generally, the water is so far below the bank that three *shadoofs* are used, one above the other, to lift the water. The lowest man serves the middle man by pouring his water into a mud basin, and the middle man serves the upper man, who pours the water into a trench.

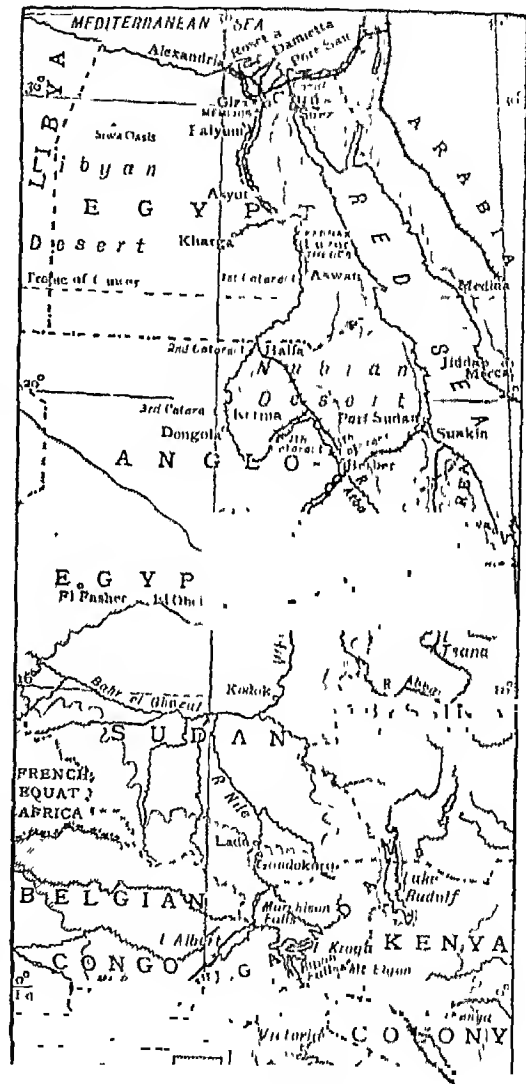
INTRODUCTION

The valley of the Nile was one of the earliest homes of civilisation. The fertile soil brought down by the annual inundation of the river, together with the soft and genial climate, attracted settlers. The following notes on the geography of the Nile will probably be helpful to the teacher in this and subsequent lessons.

Of all the rivers of the world only the Mississippi-Missouri in North America is longer than the Nile. The sources of the principal streams of the Nile are formed by three lakes—Victoria, Albert and Edward—lying on the lofty East African plateau. Lake Victoria, on the equator, 3,700 feet above sea-level, is the largest lake in Africa. As the Nile leaves the lake it falls over a rocky ledge forming Ripon Falls. The two western lakes, Edward and Albert, lie in a narrow trough, bounded in great part by steep, lofty mountain walls. Lake Edward receives copious supplies of water from the snowy range of Ruwenzori. As the river descends from the high plateau many falls and rapids occur, the last and greatest being known as Murchison Falls. The country in the upper course of the Nile is densely forested.

It will be seen from the map that near Gondokoro the Nile leaves the rocky gorge and enters the great plain of the Sudan. Here the country is of the savanna kind, that is, extensive grasslands with clumps of trees at intervals which give the general appearance of park-lands. The river now branches out into a slow-moving stream,

and for about 300 miles north of Lado it is sometimes choked with dense masses of floating vegetation called Sudd. The chief tributary from the west is the Bahr-el-



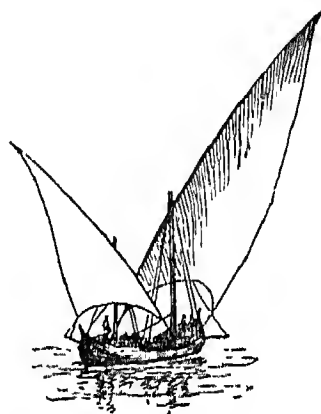
THE RIVER NILE

Ghazal. After its junction with the main stream the Nile continues the remaining 2,000 miles of its journey to the sea through an almost rainless land

At Khartoum the Blue Nile enters from the east. Rising in the Abyssinian Highlands it receives copious supplies of water from the rain and snow. About 200 miles north of Khartoum the last great tributary, the Atbara, joins the Nile. Both the Atbara and the Blue Nile bring down vast quantities of silt from the Abyssinian Highlands. Between Khartoum and Aswan, a distance of more than 1,000 miles, there are six cataracts, over which boats can go only in flood time. Before receiving the Atbara, the Nile has entered the desert zone, and the valley of the river is like a continuous desert oasis, the date palm being the characteristic plant. On the west lies the vast region of shifting sands known as the Libyan Desert, on which a few scattered oases are to be found, such as Siwa and Kharga. On the east of the Nile is the plateau of the Nubian Desert, which lies within the northern part of the great S-shaped bend of the river. In the lower part of its course there is only a narrow strip of desert land between the river and the ridge of hills which separate it from the Red Sea. On nearing the Mediterranean Sea, the Nile forms a delta composed of the silt brought down by the river and its tributaries. Thus Egypt is the gift of the Nile. The name *Delta* was first given to this part of the Nile river as it is in the form of the Greek letter D, which is written Δ and pronounced *delta*.

The only two navigable branches of the Delta are at the river ports of Rosetta and Damietta, from which places these branches take their names. The level land forming the Delta is traversed by sluggish streams which flow into shallow lakes or lagoons, cut off from the sea by narrow sandbanks. At a point on the river where the main branches of the Delta separate, a great weir called the Barrage has been built across the stream. By its means the flow of water into the Delta can be regulated so that a supply is always available for the crops. Numerous canals have been made joining the channels of the river.

The great importance of the Nile to the countries through which it flows lies in its yearly inundations—floodings. The Blue Nile is fed by torrential monsoon rains from the Abyssinian Highlands, so that the river carries down a great body of water, charged with sediment. In addition, the three great lakes act as reservoirs to hold the abundant equatorial rainfall, so that the White Nile has a constant supply of water through the year. The rise of the Nile begins in June, and the flood is at its height in late September. In order to prevent all the flood water rushing to the sea, the Barrage was made at the head of the Delta, and at Aswan, near



NILE BOAT

the first cataract, a huge dam, 1½ miles in length, has been constructed. It is made of great granite blocks, on the top is a road which makes it possible for people to cross the river. By means of the dams a much larger area of land can be irrigated than previously could be watered.

In the lower part of its course, below Ithafa, the Nile offers an uninterrupted waterway. Curious Egyptian sailing boats, having one or two sails, are the characteristic native craft of the Nile, they are called *feluccas*.

The following Egyptian myth will be useful for a "Friday Afternoon Story"

A STORY OF ANCIENT EGYPT

This story was found on an ancient papyrus. It tells of a sailor who was shipwrecked on an island where lived a serpent. It is something like the story of Sindbad the Sailor, which you may have read in the book called the *Arabian Nights*.

A sailor of Egypt set out in a ship one hundred and fifty cubits long, and forty cubits wide, with one hundred and fifty sailors on board. They were the best sailors in the land of Egypt, men who had seen heaven and earth, whose hearts were braver than those of lions. The sailors thought that the wind would be favourable, and the sea calm; but as soon as they had got out to sea a storm arose.

Great waves broke over the ship, and it was driven towards the shore. Suddenly it crashed on a rock and was broken in pieces by the violence of the waves.

The crew were washed from the deck and perished in the boiling waves. All were drowned except one. He seized a plank and the waves threw him upon an island. There he found some thick bushes, and lay down to rest. It became very dark and he slept until the next day.

Rising in the morning he felt very hungry and went in search of food. He was most fortunate, for he found figs and grapes and many kinds of berries, nuts, melons, fish, and birds. He then made a good meal, and threw away all that he did not want. Next he dug a ditch, and lit a fire, and prepared to sacrifice to the gods.

Suddenly he heard a voice like thunder. At first he thought it was the roaring of the waves of the sea. The trees trembled, the earth shook. Looking up he saw a great serpent approaching. The serpent was thirty cubits long; it had a beard that hung down two cubits; its body was covered with gold. It planted itself before the terrified sailor and said:

"What hath brought thee, little one, what hath brought thee? If thou dost not tell

me at once what hath brought thee to this island, thou shalt be burned up with a flame, or thou must tell me something I knew not before, something of which I have never heard."

Then the serpent seized him in his mouth, carried him to his den, and laid him down unharmed.

Then the serpent spoke again. "What hath brought thee, little one, to the isle in the midst of the sea, whose shores are in the midst of the waves?"

The sailor replied "I set sail in a ship, a great ship, by the orders of Pharaoh, to go to the mines. It was manned by one hundred and fifty of the best sailors of the land of Egypt, who had seen heaven and earth, and whose hearts were stouter than those of the gods. A storm wrecked the ship. I, even I alone, was saved and here I am with thee, for I was cast up on this isle by a wave of the sea."

"Fear not, fear not, little one," said the serpent, "let not thy face show sorrow. If thou art here with me it is because God hath let thee live. It is He who hath brought thee to the Isle of the Double where nothing is wanting, and which is full of all good things. Behold; thou shalt stay with me four months, then a ship shall come from thy country with sailors. Thou mayest depart with them and be happy."

"Here I dwell with my brothers and children, and retainers. We are seventy-five serpents in all. If thou art strong and patient thou shalt see thy native land once more."

Then the serpent bowed to the sailor, and the sailor bowed to the ground before him.

The grateful sailor replied to the serpent and said: "When I return I shall speak of thee to Pharaoh, and make known thy greatness to him. I shall send thee sweet perfumes, cinnamon and spices, and the incense which is offered to the gods. For thee I shall slay asses in sacrifice. I shall send ships to thee filled with all the wonders of Egypt. The whole people of Egypt shall

give thee thanks, O friend of men in a distant country of which men have never heard "

The serpent smiled and said: "When once thou leavest this island thou shalt never see it again, for it will be changed into waves."

After four months, as the serpent had foretold, a ship of Egypt arrived. The sailor climbed a high tree in order to see it better. Then he ran to tell the serpent, but found that he knew already.

"Good journey! good journey! little one," said the serpent. "Let thine eyes rest upon thy children, and may thy name be honoured in thy city "

So saying he loaded the sailor with presents—perfumes, spices, sweet-smelling wood, and incense, elephants' teeth, grey-hounds, baboons, monkeys, and all kinds of good and precious things. All these being loaded on the ship, the sailor fell on his face before the serpent and worshipped him.

The serpent said "Thou shalt arrive in thy country in two months, and press thy children to thy heart."

In the second month the sailor came to the city of Pharaoh and gave Pharaoh all the presents he had received.

Pharaoh thanked him before all the people.

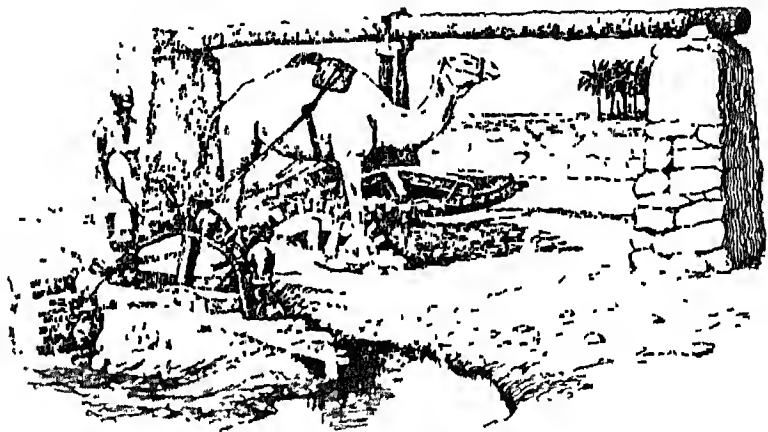
The sailor became one of the courtiers of the king, and ended his life in great honour.

CHILDREN'S STORY

Do you like putting seeds in a box of earth and watching the plants grow? Some boys and girls have gardens of their own where they grow mustard and cress, pretty pansies with dog-like faces, scarlet geraniums and other fine flowers.

Of course, such people know exactly what to do to help their plants to grow. They prick up the soil when it becomes hard, and they pull out all the weeds. When the sun is very hot the plants hang down their heads as though they were sad, and then we know that they need water. Watering plants with a can is fine fun. Is it not jolly to make a shower of water that looks like rain?

The River-Men of long ago found that their wheat and barley hung down their heads when the sun shone. In England the farmers know that before their wheat and barley become scorched by the sun the rain will come and water the plants. But



WATER WHEEL, UPPER EGYPT

in parts of Egypt it is of no use to wait for the rain. Sometimes for a whole year no rain falls at all, and in other years it rains for only a day or two. How did the River-Men water all the plants in their fields?

They took some reeds which grew beside the river and made baskets. Then they stretched the skin of a sheep or a goat over the outside of the basket and so made a bucket. With this bucket they dipped water out of the river Nile and carried the water to their plants.

But this was very hard work. The sun was hot every day, and the banks of the river were so steep that the River-Men had to climb down to the water and up again

with their buckets full, and then carry them all over the fields. Also, if they went too close to the water they might be dragged in by crocodiles.

Man went on thinking and finding out. Then he hung his bucket at the end of a long pole. Next he put two wooden posts in the ground and fastened the pole so that it could move up and down like a see-saw. At one end of this water-lift was the hanging bucket, and at the other end Man put a great lump of mud.

Now he could stand still and pull down the bucket into the water, and the lump of heavy mud at the other end would lift it up again. This machine for dipping water is called a *shadoof*. Look carefully at the picture and you will see exactly how it works. This clever plan of dipping out the water saved the River-Man much work, but still he had to walk a long way to carry the bucket of water to his wheat and barley.

So again Man went on thinking and he thought of another clever plan. Next year, before the water in the river began to rise, he dug a deep ditch all round his field. When the floods came and the water spread over the land his ditch was filled with water. When the river stopped rising and the flood water sank into the ground the River-Man's ditch was left full of water.

This was splendid. He could now water his plants quite easily without having far to walk. When he saw that he was using up the water in his ditch, he went to his *shadoof* and all day long he dipped water from the river and poured it into his ditch.

The sun, however, was so hot and the plants were so thirsty that he could not fill his ditch fast enough during a day. Then he got another man to help him, and this man went on dipping the water from the river during the night. All the River-Men who grew wheat and barley made ditches round their fields, and all of them made *shadoofs* with which to dip out the water from the river.

These things happened in Egypt thousands of years ago, yet, if you go to Egypt to-day,

there you will see the great river Nile, and near by the fields of wheat and barley. You will see the ditches round them and in and out of them, and there you will see the small brown men working at the *shadoofs*. If you sail up the Nile, as you may do, creak, creak, creak, all day and all night during the hot seasons, you will hear the noise of the *shadoofs*.

TEACHING HINTS

1. Map.—Use the map drawn in the previous lesson and again point out the positions of the Nile, mountains, desert, etc. Explain that the greater part of the land is desert, and that plants can be grown only in the vicinity of the river.

2. Buckets.—In early days buckets and other receptacles for holding water were made of leather. Probably there are some leathern fire-buckets in the school. Why are fire-buckets made of leather? (For lightness in handling.) Note also the durability of leather, e.g. of a football.

3. Shadoof.—Explain why three *shadoofs* are often needed for lifting the water from the river. Illustrate by drawing the diagrammatic sketch on the blackboard. Some children will be familiar with greenhouses, and they will know that the gardener has to water the plants every day when the temperature of the greenhouse is high.

4. Summary.—Let the children assist in making sentences for a blackboard summary, which may be arranged as follows —

Shadoofs were made long ago by the River-Men of Egypt.

Hardly any rain falls in Egypt.

All day long the hot sun shines on the land.

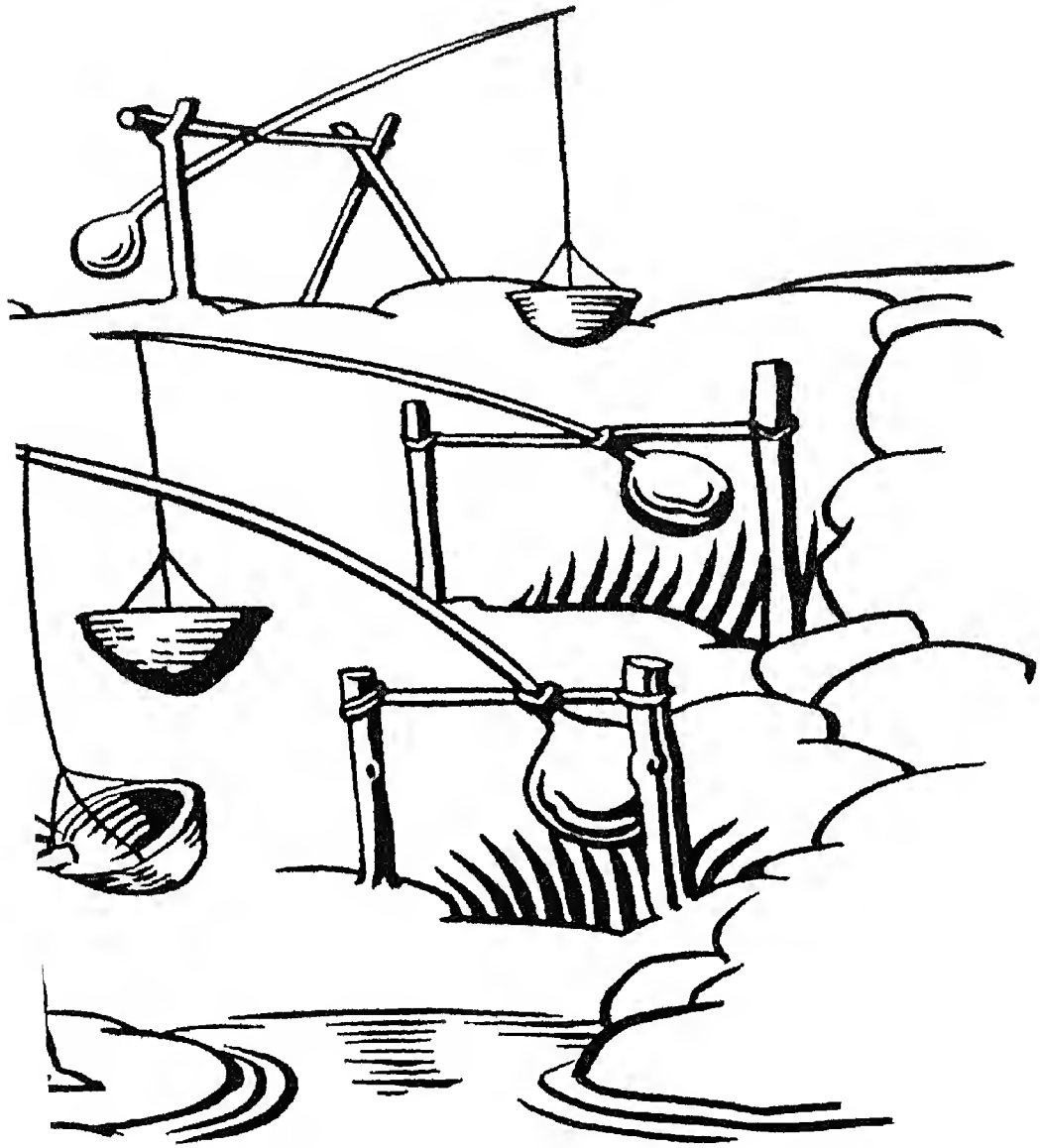
Day and night the River-Men dipped water from the Nile.

On one end of the pole a leathern bucket was hung.

On the other end of the pole a lump of mud was placed.

Fields of wheat and barley in Egypt can be grown only near the river.

SKETCHES FOR THE BLACKBOARD



RAISING WATER UP A BANK BY MEANS OF THREE SHADOOS

5. Memory Work—(a) The River-Men of Egypt made buckets with which they dipped water from the Nile for their wheat and barley. (b) They invented water-lifts, or *shadoofs*, to make the work of dipping water easier and safer. (c) Round their fields they dug ditches which were filled with water when the floods came. (d) During the hot season men in Egypt work day and night at their *shadoofs*.

6. Exercises.—(a) Tell how you would grow some flower seeds in a garden. (b) Why did the River-Men of Egypt have to water their wheat and barley? (c) Why did the River-Men put a lump of mud at one end of the pole of their *shadoof*? (d) Why did the River-Men dig ditches round their fields? (e) What noise would you hear if you sailed up the river Nile?

7. Another Story of Ancient Egypt.—Once upon a time, one of the Pharaohs of Egypt went on a visit to the temple of the God Ptah. He took a train of followers and servants with him, and among them was a very handsome young man. On the way he stopped at the villa of his chief scribe, where there was a garden with a stately summer-house, and a beautiful lake. The scribe's wife fell in love with the fine young man of the Pharaoh's train, and soon afterwards sent him gifts. They then met secretly in the summer-house and feasted, and in the evening the young man bathed in the lake. This happened several times. At length the scribe's chief butler heard of it, and told his master.

The scribe took some wax and moulded

it into a small crocodile. Then he placed the crocodile on a certain magic box, and muttered a spell over it. He gave the wax crocodile afterwards to the butler, and said, "Cast this into the lake behind the youth when next he has a bathe."

So the butler waited until the young man visited the scribe's wife again in the summer-house, and bathed at eventide in the lake. While the youth was swimming in the water, the butler stole through the garden, and softly cast into the water the wax animal. It immediately came to life, and turned into a great crocodile that seized the youth suddenly and took him away.

When the scribe heard of it he told the Pharaoh, and invited him to his house. The Pharaoh went, and when they both stood beside the lake in the garden, the scribe spoke magic words, bidding the crocodile appear. Immediately the great reptile came out of the water, carrying the youth in its jaws.

"Lo! it shall do whatever I command," said the scribe.

"Bid it return to the lake," said the Pharaoh.

The scribe touched the crocodile, and immediately it became a small wax creature again. The Pharaoh was filled with wonder, and the scribe told him the whole story, while the youth stood waiting.

Then His Majesty said to the crocodile, "Seize the wrongdoer."

The wax crocodile again came to life, and, clutching the youth, leaped into the lake and disappeared. Nor was it ever seen again.

V. CAKES WITHOUT CURRANTS

PICTURE REFERENCE



AN EASTERN HAND MILL
(Class Picture No. 5 in the portfolio)

THE Hand Mill was the most indispensable article of Eastern furniture, and some families still grind their wheat and barley at home. The mill consists of two flat circular stones, about 2' in diameter and 6" in thickness. The upper stone has a wooden handle fixed in it near the edge, by means of which it is caused to revolve. The corn is poured through a hole in the centre.

The lower stone has its upper surface slightly raised towards the middle, and the upper stone is hollowed out underneath to fit and work upon this curved surface. An upright metal pin is let into the *nether* stone.

In working the mill a cloth is spread beneath it to catch the flour. The work is laborious, and sometimes two women work the mill sitting opposite to each other.

INTRODUCTION

Bread-baking, or at any rate the preparation of cakes from flour, or parched grain, by means of heat, is one of the most ancient of human arts. Burnt remains of cakes made from coarsely-ground grain have been found in Swiss lake-dwellings that date back to the Stone Age. There have been found many round-shaped stones which were used for pounding or crushing grain against the surface of another stone.

To bake their cakes the lake-dwellers probably laid the dough on a flat, convex-shaped stone, which was heated, while the cakes were covered with hot ashes. Stones which were apparently used for this purpose have been found among prehistoric remains. In ancient Egyptian tombs cakes of durra (millet) have been found of concave shape, suggesting the use of such convex baking slabs.

In primitive times the house-wife, the daughters and handmaids, crushed, or ground the grain and prepared the bread, or cakes. When Abraham entertained the angels unawares (Genesis xviii.) he bade his wife Sarah "make ready quickly three measures of fine meal, knead it, and make cakes upon the hearth."

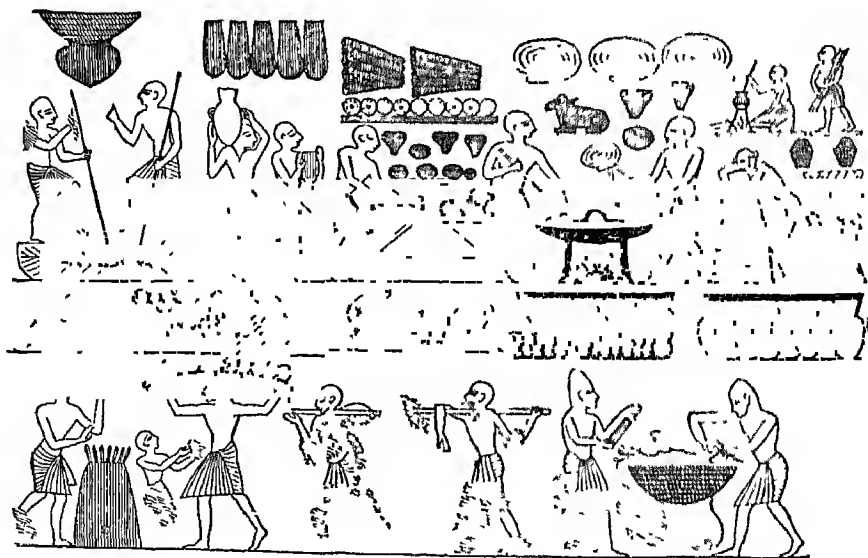
The ancient Egyptians carried the art of baking to high perfection. Herodotus remarks that "dough they knead with their feet, but clay with their hands." The form of the bread is revealed by ancient monu-

ments. A common shape was a small, round loaf, something like the muffin of to-day. Other loaves were elongated rolls, which were sprinkled on the top with seeds. The illustration shows still other forms of loaves.

There are many references in the Bible to the hand mill. The Jews considered it so essential for the maintenance of the life of the household, that a law forbade any creditor to seize the mill as a pledge—"No man shall take the nether or the upper millstone to pledge, for he taketh a man's life to pledge" (Deuteronomy xxiv. 6).

For the lower stone of the mill the hardest material was selected, hence, in the book of Job, the heart of the crocodile is for hardness compared to it: "his heart is as firm as a stone; yea, as hard as a piece of the nether millstone" (Job xli. 24).

That grinding the corn was the work of women is clearly shown in several passages, e.g., when the first-born sons in Egypt died on the night of the Exodus, not one family escaped, "from the Pharaoh that sat on the throne to the maidservant that was behind the mill" (Exodus xi. 5). Again in Matthew



MAKING BREAD IN ANCIENT EGYPT

Notice the two men treading the dough; the baker making loaves; the fire and flat pan on which the loaves were baked, the pretty shapes of the cakes and loaves

xxiv 41, we read, "two women grinding at the mill."

Men who were prisoners of war sometimes did the grinding, thus we read that Samson was set to grind corn in the prison (Judges xvi 21). In Isaiah xlvii. 1, 2, Babylon is called to yield submission to the conqueror and take the place of the captive to work the hand mill: "Come down, and sit in the dust; sit on the ground, there is no throne, O daughter of the Chaldeans . . . Take the millstones and grind meal."

The following Egyptian myth will be useful for a "Friday Afternoon Story."

OSIRIS

When Osiris was born a voice from heaven whispered to a wise and holy man of Egypt, "Now hath come the lord of all things." The wise man gave a glad cry and then he told the people of Egypt, "A good and wise king hath appeared among us."

The baby Osiris grew to be a man and he sat on the throne and ruled the people. At this time his people were like savages. They lived by hunting wild animals; they wandered about all over the country; there were fierce fights between different tribes.

Good King Osiris set himself to make wise laws and to begin a new age of peace. The queen of Osiris was a clever woman named Isis. She it was who saw that men needed to grow grain. She took the seeds of the wild wheat and barley and gave them to the king. Then Osiris taught his people how to break up the land where the Nile had overflowed and left fertile mud, and how to sow the seed. When the grain grew tall and the hot sun ripened the ears, he showed men how to make flint knives with which to cut them off. Afterwards he taught them to grind the grain between stones, and knead the flour into cakes. Osiris, also, showed the people how to grow vines on poles and how to grow fruit trees. Like a father he taught his people to worship their gods, to build temples and to live holy lives. Thus Egypt was rich and

peaceful under the rule of Osiris the Good, and no man lifted his hand against his brother.

After all his lands had been thus set in order, Osiris the Good went forth to teach wisdom and kindness to all the world, leaving his queen, Isis, to rule for him in Egypt. But Osiris had a wicked brother, called Set, who loved evil deeds and warfare better than peace. Set made up his mind to take the kingdom from his brother.

Great rejoicings took place when Osiris at last returned to Egypt. A royal feast was prepared to which the wily Set and his fellow plotters were invited. Before the feast took place, Set had made his wicked plans. He had got the measurements of the king's body and had caused a chest, or box, to be made which would exactly hold the body of the king. The box was most beautifully carved with flowers and fruits, with men and animals, and all who saw it greatly longed to possess it.

The wicked Set waited till the end of the feast when all were gay of heart. He then said, "I will give this chest to the man who can get inside it and whose body fits it exactly." No one suspected evil, and all the guests thought it very amusing to get into the beautiful box to try who might fit it exactly. Everyone was eager to make the trial, but no one could fit himself into the box. Osiris the king waited till the last and then he stepped forth. His body fitted the chest exactly. With a great cry the followers of Set rushed forward, crashed down the heavy lid, nailed it firmly in place, and soldered it with lead. Thus the beautiful box became the coffin of good Osiris who there breathed his last.

Now fierce fighting took the place of joy. The followers of Set picked up the chest containing the dead king. Secretly, they carried it through the darkness, and flung it into the River Nile. The chest drifted down the current in the gloom of night, and when morning came it was tossing on the waters near the sea. Thus ended the peaceful and prosperous reign of Osiris.

When this terrible news was told to Queen Isis her sorrow knew no bounds and she refused all comfort. She wept bitter tears and cried aloud. Then she made a vow to find the body of Osiris, and putting on the robes of mourning started out to search for the box. Day by day Isis wandered on, questioning all those she met. For a long time she heard no news of it, until some children told her they had seen the chest floating on the river near the sea.

In the meantime, the evil Set had seized the kingdom and himself reigned over Egypt. Gone was the time of peace and prosperity, many evil deeds were done, and the country was in great disorder. The good Queen Isis, in fear of her life, hid in the tall grasses that grew beside the river. However, she was protected by seven scorpions which followed her everywhere. Now a scorpion has a terrible sting, and no man dared come near Isis for fear of being stung to death.

It happened one day that Isis asked for shelter at the house of a poor woman, but when the woman caught sight of the seven fearful scorpions she shut the door quickly and refused to open it. One of the scorpions managed to get inside the house and stung the woman's child so that it died. The poor woman began to weep and lament loudly, but Isis spoke magic words and the child came back to life. The woman was very grateful and took the queen into her house and looked after her. While the queen lived in the poor woman's house, she had a son whom she called Horus.

Many years went by, but at last the chest was cast upon the shore of Syria. The gods made a great tree grow round it, and it was enclosed in the trunk as the tree sprang up. The king of that country was so struck by such a marvel that he cut down the tree and carried away the trunk, still enclosing the chest, and set it up in his palace as a sacred pillar. Isis heard of this wonderful tree trunk. She came to the king's house in disguise and gained entrance by speaking gentle winning words and by giving a rare sweet

scent to the queen's maidens. At last Isis told the king who she was and asked for the sacred pillar containing the chest. The king gladly gave it to her, and she cut into the heart of the pillar and took out the chest. She embraced it, and shed many tears and uttered wails of lamentation. Then the chest was carried to the ship in which Isis had come to Syria. The sailors bent to their oars and soon they reached Egypt, where Isis hid the chest in a secret place.

Now it chanced that as Set was out hunting the wild boar in the river grasses he found the chest, which he quickly opened. He was terribly angry when he saw in it the body of Osiris, and he had it cut up into fourteen pieces which were thrown into the Nile to be eaten by the crocodiles. But the crocodiles feared Queen Isis and they would not eat the king's body, and the pieces were cast up by the water on to the river bank.

Great was the grief of Isis when she knew what Set had done. She had a boat made of papyrus and sailed up and down the river till she had found all the parts of her husband's body except one that had been swallowed by a fish. Isis buried each part in the place where it was found, and over each she built a tomb. Later on, temples were built over these tombs and Osiris was worshipped in them.

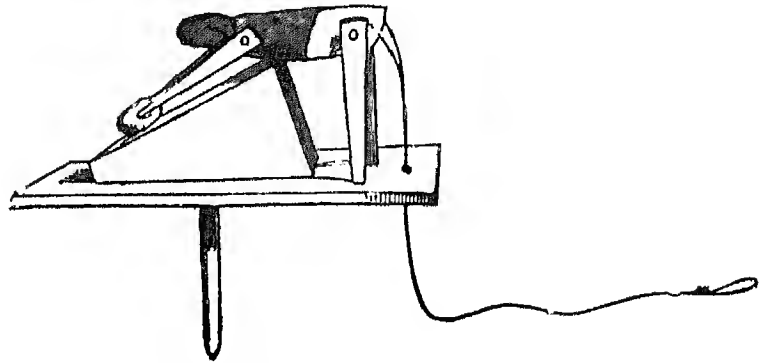
Horus, the son of Isis, had now grown into a strong young man and a brave warrior. One night the spirit of his father came to him and said, "Take your soldiers and overthrow your wicked uncle Set who caused me to die in the chest."

"Father," said Horus, "I will gladly do your bidding."

Now he set cunning workers of metal to make swords, spears and bows, and soon his army was ready for battle. Fierce fighting went on for many days and at last the wicked Set was driven from the land and Horus ruled in his place.

The gods looked kindly on Horus the new king. They helped him to join together all the fragments of his father's body and he wrapped them in linen bandages. Then the

spirit of the queen fanned the body with her wings and Osiris lived again and became the king in the Land of the Dead. To help the people of the earth he watched over their fields and made their plants grow tall and strong and bear fine crops of grain



A TOY MILLER OF ANCIENT EGYPT

Far away in Egypt, the
strange kings he
sleeping ;

Rising and falling the old Nile flows ;
Through seed-time and growing, and the
time for reaping

They wait, and we wait, for what- none
knows.

CHILDREN'S STORY

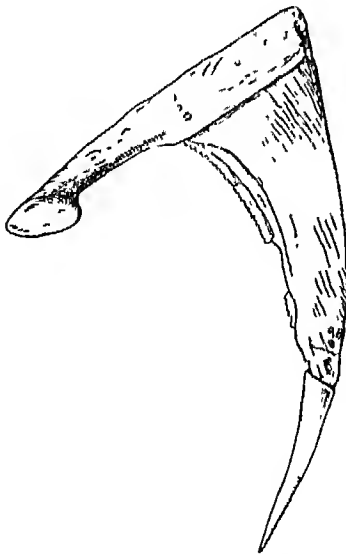
When the wheat in the fields was ripe the River-Men gathered the ears. At first they pulled them off with their hands, but in

time Man found out a quicker and better way of gathering them. With his stone axe and his stone knife he shaped a wooden sickle and fitted sharp flints in it to make a cutting edge. Now he could take a handful of growing wheat in his left hand and with the sickle in his right cut many stalks at one stroke. When he had reaped all the ears of wheat he spread them out on the ground. Then he fetched his tame ox and let it tramp, tramp over the ears until all the grain was trodden out. There are people of the East who still use their oxen to tread the grain out of the ear.

The wheat had to be separated from the dusty chaff. A woman did this work. She took a flat piece of wood in each hand, gathered a heap of wheat and chaff between the boards, and tossed the heap into the air. Up and down, up and down for hours at a time the patient woman sat tossing her wheat into the air. The winds blew the light chaff away, and after a while the clean wheat was picked up and put into baskets.

Now came some very hard work. The woman had to grind, or pound, the wheat into flour. She spread a handful of grain on a flat stone and crushed the kernels with a stone held in her hands, much in the same way that mother uses a rolling-pin to flatten out pastry.

Here is a picture of a pretty toy with which a boy of old Egypt once played. (Blackboard sketch) It is a toy miller, for



A TOOTHED SICKLE OF ANCIENT EGYPT SHOWING SAW-LIKE FLINTS SET IN A WOODEN SOCKET

that is the name given to the man who grinds corn into flour. When the string is pulled the little miller moves backwards and forwards rubbing the grain between the stones.

You know that when flour is mixed with water the mixture is called *dough*. The baker's men of old Egypt put the flour and water into a large tub or pan, and trod about on the dough with their bare feet until it was well kneaded. How curious it seems to us that in olden days sheep trod the seeds into the ground, oxen trod out the ripe grain, and men trod the dough. As the years went by Man found out better ways

bread on a flat pan which was heated by a fire placed underneath.

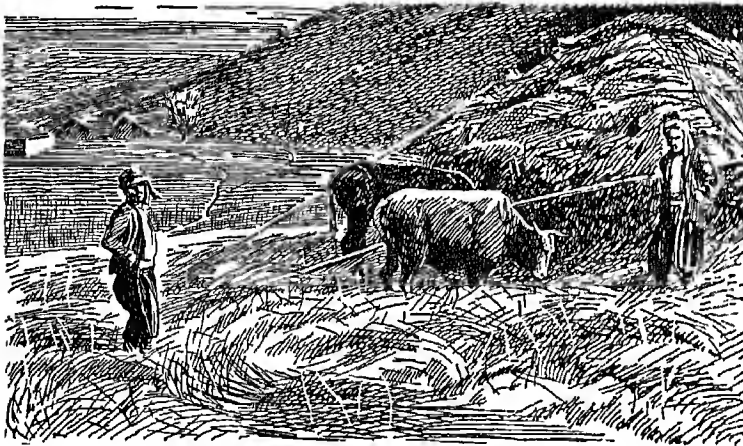
Now look again at the picture of the two women grinding wheat into flour. They are women of the East who are using a hand mill. In the upper stone is a hole which fits over a peg in the middle of the lower stone. On the edge of the upper stone is a wooden handle by means of which the women make the stone turn round and round. The wheat is poured through the hole at the top and a cloth is spread on the ground to catch the flour.

This is the sort of mill that Man found out was best for crushing wheat and barley.

In some countries of the East every household has a hand mill like this. Every morning very early you will hear the clug, clug of the stones as the women grind the corn to make the cakes of bread for the family.

Most of your Bible stories are about people of the East who lived in Palestine. In those stories you will often hear about the hand mills and the bread. When the angels visited Abraham

he told Sarah his wife to "make ready three measures of fine meal, knead it, and make cakes upon the hearth." We are told how Samson the strong man was made to *grind corn* in prison. In another place we read, "Come down and sit in the dust; sit on the ground, . . . take the millstones and grind meal."



PRIMITIVE THRESHING WITH OXEN

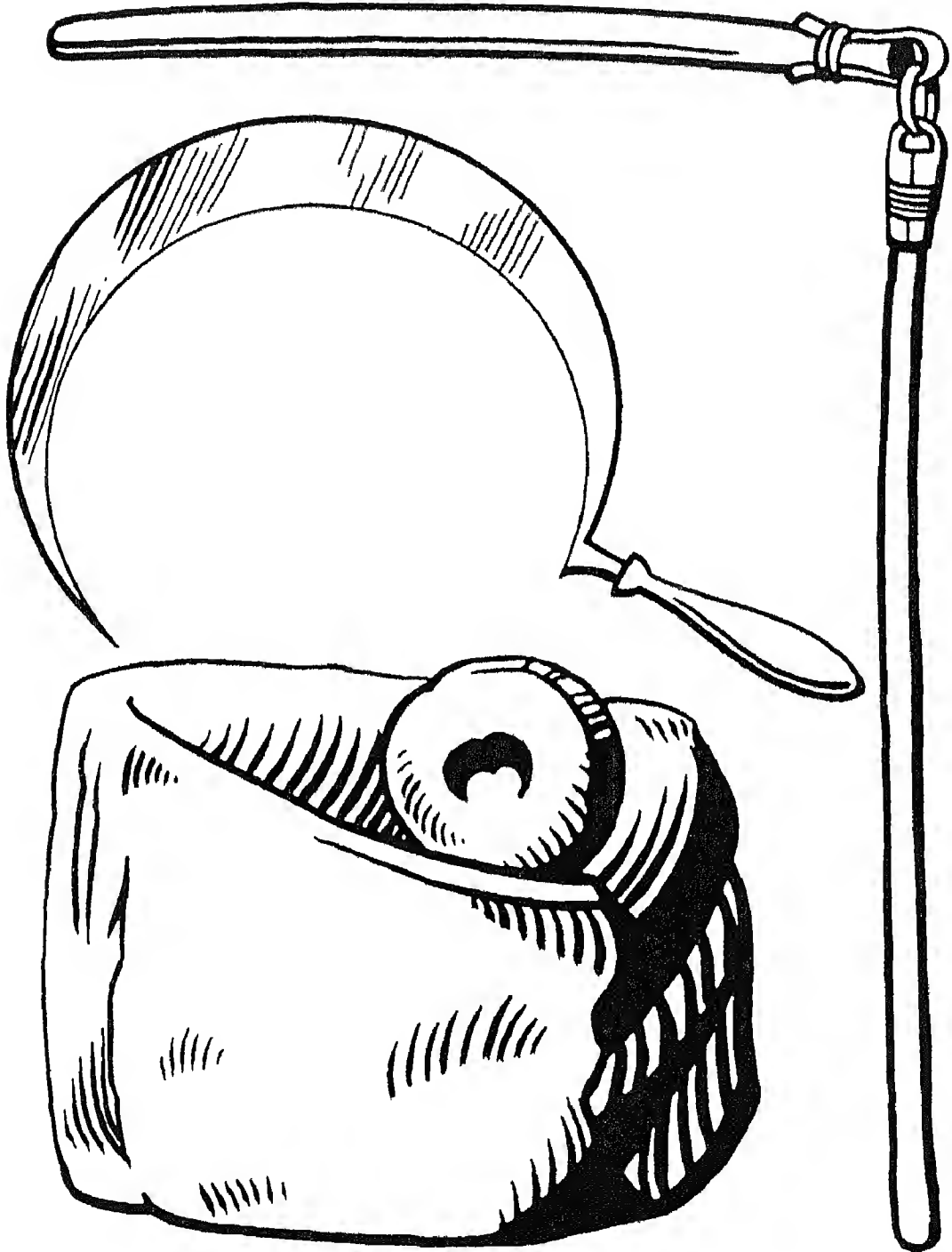
of doing these things, and he still goes on thinking and finding out. The Egyptian baker made flat cakes of bread much like our muffins. He made rolls like slices of "Swiss roll," and sometimes he made pretty shapes of animals such as a cow. Perhaps your own mother has made you a "cookie boy" with currant eyes and currant buttons. The boys and girls of long ago were not so lucky, for they had no currants in those days.

The baker did not put his cakes of bread into an oven, but he cooked them as you cook chestnuts in a shovel over the fire, or as mother cooks pancakes. He put his

TEACHING HINTS

1. **Reaping.**—The terms reaping, threshing and winnowing have not been used in the Children's Story, but the teacher may like to mention these names, especially if the

SKETCHES FOR THE BLACKBOARD



ANCIENT STONE CORN-CRUSHER

MODERN SICKLE

MODERN FLAIL

class is forward. Comparisons can, of course, be made with modern methods, and more particularly in country schools, where the children are familiar with the various machines used in the several processes. The illustration of the prehistoric toothed sickle of the eighteenth dynasty, found in Egypt by Professor Petrie, shows saw-like flints set in a wooden socket. For comparison with this primitive sickle an illustration of a modern sickle is given. The method of using a flail for threshing may also be mentioned. An illustration of the flail is shown in the sketches for the blackboard.

2. Milling.—An illustration for the blackboard is shown of an ancient stone corn-crusher, which was dug up in England. The sides of the stone roller were hollowed out for the hands of the woman who worked it backwards and forwards on the bed-stone. In some districts the teacher will naturally refer to windmills and watermills, but care should be taken not to give too much time to an explanation of these modern machines.

It would be valuable to a class if a model hand mill could be made at a woodwork centre, or by some one interested in woodwork. Every teacher knows how greatly the interest of a class is aroused by seeing a model that works. Such models should be kept with others in the historical section of a cupboard, or museum.

3. Bread.—In the north of Britain the housewife bakes thin oatcakes made from oatmeal on a hot iron griddle (it used to be a hot stone). The *dampier* of the Australian colonist is as simply made with flour and water in thick cakes, baked on the embers.

4. Memory Work.—(a) The River-Men made sickles having sharp flint edges to cut the ripe ears of wheat and barley. (b) Oxen were used to tread out the grain. (c) Women tossed the grain into the air for the winds to blow away the chaff, and women ground the grain between stones to make flour. (d) The baker kneaded the dough with his feet and baked his bread on pans over a fire. (e) In Palestine and other countries of the East women still grind grain in hand mills.

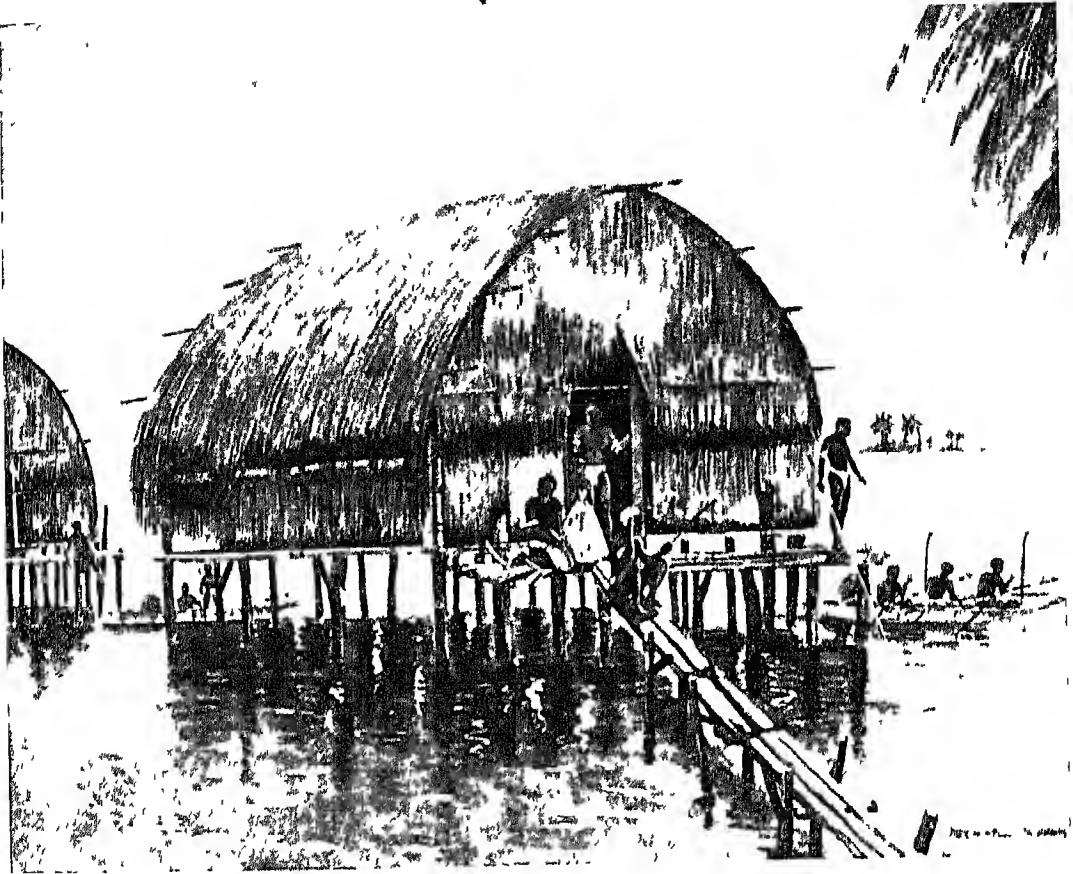
5. Exercises.—(a) Tell how Man of long ago made his sickle. (b) Tell how Man of long ago used tame animals to help him in his work. (c) Why did women toss the grain into the air? (d) Tell how the Egyptian toy miller works. (e) Tell of all the things that you have seen cooked in a pan over a fire. (f) Name something in your room which is east of the place where you are sitting. (g) Tell how the women in the picture work the hand mill.



SHEPHERDS COOKING IN THE FIELDS IN ANCIENT EGYPT

VI. THE LAKE-MEN

PICTURE REFERENCE



PART OF A MARIME VILLAGE
(Class Picture No. 6 in the portfolio)

THE Class Picture is a part of a Marime Village in the Admiralty Islands, a small group off the north coast of New Guinea. Many Melanesian coast villages are built in the water to guard against surprise attacks by hostile tribes from the interior. Piles are driven into the sea-bottom, and on these the huts are constructed. Domed thatched roofs come down almost to the floor, which is several feet above the water. There

are no windows. A narrow plank bridge without handrails gives access to the shore.

INTRODUCTION

Lake Dwellings is the term employed in archaeology for habitations constructed within the margins of lakes or creeks at some distance from the shore. Usually piles (rough stems of trees) were driven into the

bottom of the lake, and on their level tops the beams supporting the platforms were laid and fastened by wooden pins. On these substructures the huts composing the settlement were built, for the peculiarity of these lake dwellings is that they were pile *villages*, or clusters of huts occupying a common platform. The walls were formed of wattle-work, coated with clay. The floors were of clay, and on each floor there was a hearth constructed of flat slabs of stone. The roofs were thatched with bark, straw, reeds or rushes.

The remains of gangways or bridges have been found connecting settlements with the shore, but it would seem that in some cases the village was accessible only by canoe. Several single-tree canoes (dugouts) have been discovered. The character of the relics found shows that in some cases the settlements have been the dwellings of a people who used no materials but stone, bone and wood for their tools, ornaments and weapons. In other cases they were the homes of a people using bronze as well as stone and bone, and in others again the occasional use of iron is disclosed.

The implements found in the relic bed of a lake-dwelling settlement of the Stone Age were axe-heads of stone with their haftings of stag's horn and wood; a flint saw, set in a handle of fir wood and fastened with asphalt, flint arrow-heads; harpoons of stag's horn with barbs, awls, needles, chisels, fish-hooks and other implements of bone, a comb of yew wood and a skate made out of the leg bone of a horse. The pottery consisted chiefly of roughly-made vessels. Burnt wheat, barley and linseed, with many varieties of seeds and fruit were intermingled with the bones of the stag, ox, swine, sheep and goat. Remains of the beaver, fox, dog, bear, horse, elk and bison were also found.

Some people of the New Stone Age lived in villages of wooden huts built on the tops of hills, others dug pits in the ground and roofed them over.

From the list of relics found in the

lake beds and other places it will be clear that man was steadily advancing towards civilisation. The Lake Dwellers no longer depended on hunted animals for food and clothing, they grew grain for their "bread," their flocks and herds supplied them with milk and meat, and fish was abundant in the lakes. Man now had real clothes, for he had discovered how to spin threads of flax and wool and weave them into cloth. Many spinning whorls and even portions of woven cloth have been found in relic beds. It must have been much healthier living in these huts instead of in caves, for now the bones and rubbish were thrown into the water. Another great advantage was that the people could wash and swim in the lakes. It is probable that the Cave-Men were unspeakably dirty.

CHILDREN'S STORY

Where can you see a hut built on the top of four tall posts? The hut is built of wood, it has many windows, and at one end is a door which leads by a ladder down to the ground. Inside the hut stands a man with a cloth in his hands. As you watch him through the windows you see him wrap his cloth round an iron handle and pull very hard. Then he wraps it round another handle and pulls again, and afterwards he looks out of a window. By this time you know that the hut is a signal-box which stands by the side of the railway.

Long, long ago, many men, women and children lived in wooden huts built on posts like the signalman's box. Thousands of years had passed while men were taming their wild cattle, sheep, goats and pigs, and thousands of years had passed while men were finding out how to grow wheat and barley. The people who kept animals and grew grain had to live where there was plenty of grass or rich soil, so they left their caves and built wooden huts. Why do you think they built their huts on poles, or

piles, like the signalman's box? Because they built them in water.

One of the places where such people lived was in the lakes of Switzerland. (It is from this country that we now get Swiss milk and Swiss watches.) Switzerland is a mountainous country with many large lakes in the valleys. Here in the water the Lake-Men built their huts.

With their stone axes they cut down small trees and prepared a great number of wooden posts, or piles. These they drove upright into the soft bottom of the lake a short way from the shore. On the top of the piles they made a floor upon which they built their huts. They covered the walls of their huts with *wattle*, that is a frame-work of twigs and reeds interlaced like basket-work. The wattle they plastered with clay.

Sometimes huts caught fire and were burnt down and the remains fell into the water. Bits of burnt clay with the marks of the twigs on them have been found, and these bits of clay, thousands of years old, tell the story of the Lake-Men who plastered the wattle round their huts.

Many families of Lake-Men lived side by side, so that there were whole villages built out in the water. Sometimes the villages were joined to the shore by a bridge, but sometimes the people used boats instead of bridges. To make a boat the men cut down a tree. With their stone tools they hollowed out one side of a large log. Sometimes they charred the wood with hot stones to make the work of hollowing the log easier. A boat made by hollowing out a large log is called a *dugout*.

In their lake dwellings the people were more safe from wild animals than the Cave-Men had been in their caves, and they were safer, too, from robbers.

These Lake-Men had given up most of their hunting ways. They kept animals, they grew grain, and they fished. They had found out how to make fishing nets from the thread which lies inside the stalks of flax. They had long found out how to make

ivory and bone fish-hooks with sharp barbs. In the lakes were plenty of fish. The dugouts were very useful, for in them men could go far out on the water and spread out their nets, or let down their hooks.

It was cleaner living in the lake huts than in the caves. Instead of throwing all their rubbish on to the floor they threw it into the water. This was much better for their health. The children grew strong and kept themselves clean by swimming in the cool water.

Not very far from northern Australia, in a land called New Guinea, people still live in huts built on piles stuck upright in water. In the picture you will see some huts of these people just as they are to-day.

TEACHING HINTS

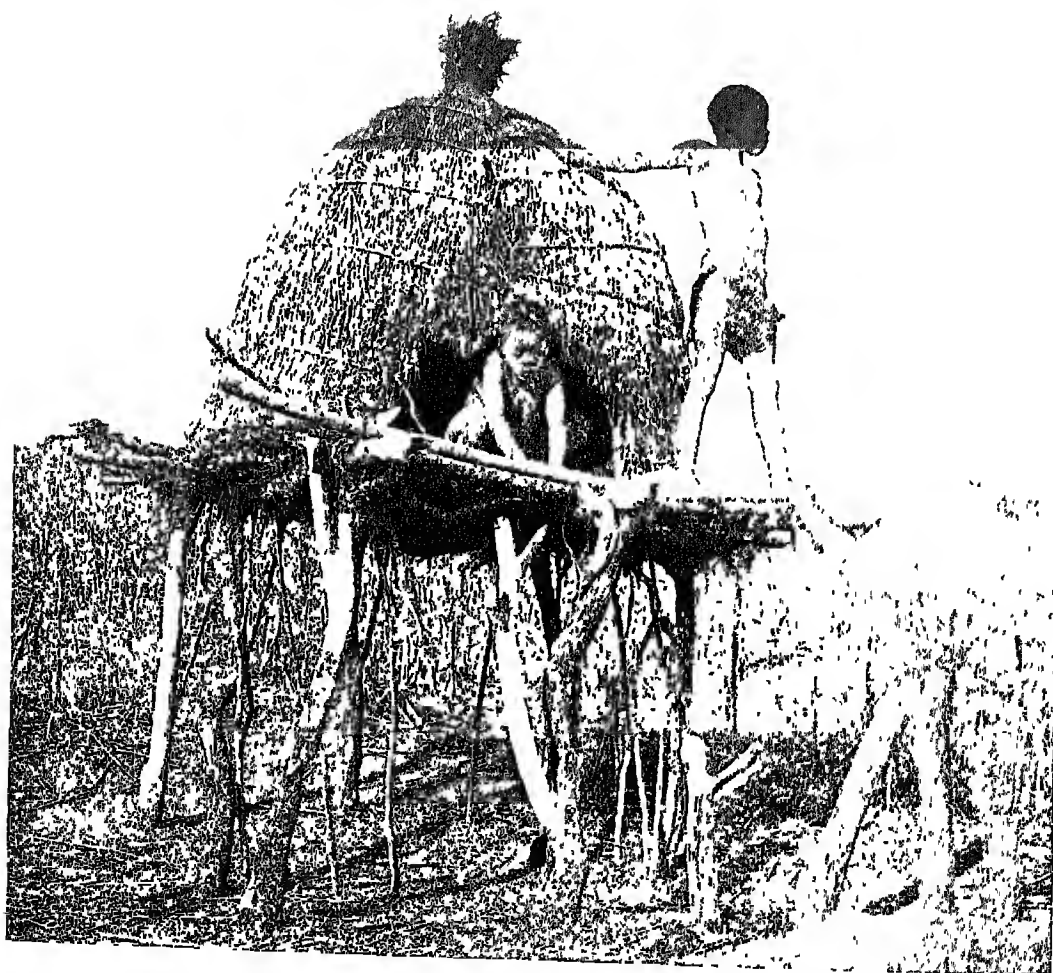
1. *Signal-box.* All children are interested in railways, hence the signalman's box forms a useful introduction to the lesson on lake-dwellings. The most important features of old-world dwellings, on land or in water, are seen in many signal-boxes. In the ladder we see the beginning of the outside staircase, and in the boarded space between the posts we see the storehouse, for in early times the ground-floor was frequently a mere store room, which, in some cases, must have been produced by boarding or fencing in the space between the posts of a pile-dwelling. In every storeyed house at the present time it is not the ground-floor, but the storey above it which is called the "first floor." Note that many barns or granaries are built on posts or "staddles" of timber or stone, to preserve the grain from the onslaughts of rats and mice. As examples of structures built on piles reference should be made to the piers or jetties seen at most seaside watering places. (The modern pier is usually built on steel piles.) Reference should be made to the Papuan tree-dwellings, and a sketch drawn on the blackboard.

2. Health.—It is advisable to utilise every occasion that happens for impressing the simple facts of hygiene on the children's minds. It is easy to picture the filthy state of the cave dwellings, especially when one remembers the enormous quantity of bones that has been found in some of them. The importance of the work of the modern dustman, the significance of the closed dustbin and the clean backyard can hardly be spoken of too often.

3. Memory Work.—(a) The Lake-Men built their wooden huts on piles set upright

in the water. (b) In the water their houses were protected from wild beasts and robbers. (c) They kept animals, grew grain and fished. (d) From logs they hollowed boats now called "dugouts."

4. Exercises.—(a) Why is a railway signal-box built on piles? (b) Why did the Lake-Men build their dwellings in water? (c) How did the Lake-Men reach their huts from the shore? (d) How did the Lake-Men make boats? (e) Why was it more healthy to live in lake-dwellings than in caves? (f) If you have seen a pier at the seaside, tell how it is built.



SHELTER FOR BOYS WATCHING CROPS—SOUTH AFRICA

[Courtesy South African Railways]

SKETCHES FOR THE BLACKBOARD

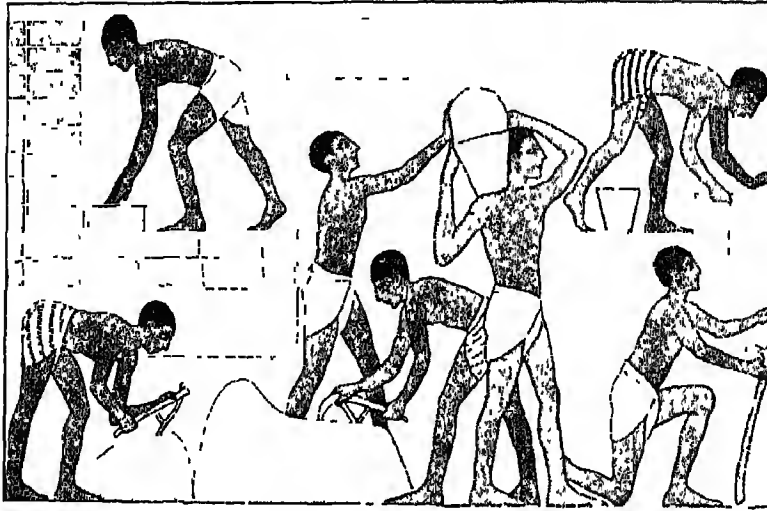


DUGOUT CANOE

BUILDING WATTLE HUT

VII. THE LAND THAT NEVER CHANGES

PICTURE REFERENCE



EGYPTIAN BRICKMAKERS OF THE PYRAMID AGE

THE Class Picture (No. 7 in the portfolio) is based on the above illustration from an ancient Egyptian painting. At the left below, two men are mixing river mud with hoes, and a third is helping to load a basket of mixed mud on the shoulder of another. On the right above, the moulder is making bricks with his wooden mould, and on the left above, a man is laying the bricks in rows. On the right below, a workman is mending his mud-hoe.

INTRODUCTION

The art of brickmaking dates from very early times, and was practised by all the civilised nations of antiquity. The earliest burnt bricks known are those found on the sites of the ancient cities of Babylonia, where well-burnt bricks were made more than 6,000 years ago. They were extensively

used in the time of Sargon of Akkad, c. 3800 B.C. The site of the ancient city of Babylon is still marked by huge mounds of bricks, the ruins of its great walls, towers and palaces. Brickmaking formed the chief occupation of the Israelites during their bondage in Egypt, but in this case the bricks were probably sun-dried only. These bricks were made of a mixture of river mud and chopped straw or reeds, worked into a stiff paste with water. These sun-dried bricks, or "adobes," are still made, as of old, on the banks of the Nile. The ancient method of brickmaking is doubtless the same as that employed to-day. A hole is dug at the edge of a stream and the mud is trampled up in it. Sand is usually mixed with it to prevent cracking, and sometimes chopped straw to bind the mud. Chopped straw is also used for dusting the mould to prevent the bricks adhering to it. The

moulder gathers a mass of mud, throws it into the mould, presses it in and smooths it over. He lifts off the mould by means of a wooden handle. Then he moulds another brick by the side of the finished one. Thus a number of bricks stand on the ground about an inch apart. After three or four days they are dry enough to be turned upon end, and in a few days more they are sufficiently dry to be used for building.

There is an interesting passage in the Bible (Genesis xi. 3, 4, 8), which refers to the use of bricks in building the tower and city of Babel.

"And they said one to another, Go to, let us make brick, and burn them thoroughly. And they had brick for stone, and slime had they for mortar.

"And they said, Go to, let us build us a city and a tower, whose top may reach unto heaven. . . .

"And they left off to build the city."

The passage refers to Babylonia. In this land there are no stones, nor any rock quarries within hundreds of miles. The soil is all alluvial deposit brought down from the highlands by the rivers. As the Bible narrative relates, the inhabitants made bricks for their dwellings. For mortar they used bitumen which is called slime. Many remains of brick buildings with bitumen for mortar have been found. The bricks were large, measuring over 20" long, 12" broad and 4" thick. Often every brick in a building was stamped with the name of the reigning king.

In connection with this lesson opportunity might be taken to tell again to the children the story of Moses and the Israelites in Egypt.

CHILDREN'S STORY

How do you think the River-Men of Egypt built their huts? They could not build them of *wood*, for few trees grow in the land of no rain. True, there were some date

palms, but the River-Men would not cut them down because they liked the dates.

How about *stones*? There were no stones, for, as you know, the river covered the land every year with fine soil.

Had you thought of *mud*? There was plenty of mud, so that is what they used for building huts, and this is how the River-Man set to work.

First he took some straw from the fields and chopped it small. Then in a pool of water he put the chopped straw and a heap of mud. Next he mixed the straw and the mud and the water, by trampling on it, as the baker's men did when they kneaded the dough. When the mud was sticky (not too wet and not too dry) he shaped his bricks in a wooden frame, or mould. He filled the mould with the sticky mud and smoothed off the top with his hands. On lifting the mould he had a mud brick. It was like making sand-castles on the beach with a pail without a bottom.

All day long the River-Man worked at his brickmaking, setting the bricks in rows to dry in the sun. In a few days they were quite hard and the man could build his hut.

It was a tiny hut, but that did not matter, for he and his family lived mostly out of doors. He chose a place on high ground where the floods would not reach. With his bricks and some wet mud for mortar he built the four walls and on the top he put a roof of straw or rushes covered with mud. It took only two or three days to build a hut of sun-dried bricks.

All the River-Men of old built huts in this way. Later on, men found out that bricks would last longer and make stronger walls if they were dried by fire, so many men baked their bricks. Some of these baked bricks have lasted so well that in Babylonia, one of the lands where the ancient River-Men lived, huge piles of baked bricks can still be seen.

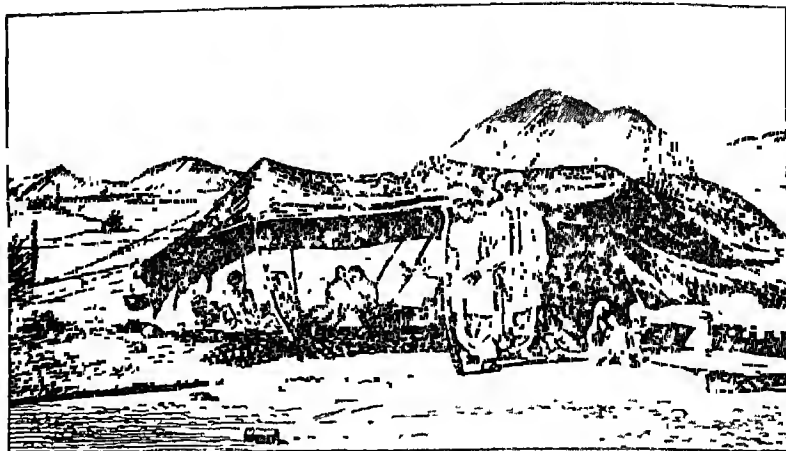
In the picture you will see exactly how the men of Egypt made their bricks. In the middle part of the picture two workmen are mixing the mud with wooden hoes, while

one man helps another to load a basket of mud on his shoulder. The moulder on the right side of the picture holds the handle of the wooden mould in which he is just going to shape a brick. On the left of the picture many men are seen either carrying dried bricks in slings or building them in stacks ready for use. For thousands of years huts in Egypt have been built of bricks, and the peasants who work in the fields of Egypt to-day still make their huts in the same way.

Egypt is the "Land That Never Changes." The peasants go on making bricks for their huts, or dipping water from the river for their crops, as their fathers did thousands of years ago.

Come with me this evening for a sail up the Nile and I will show you pictures of the "Land That Never Changes." Two small brown men take us on board their pretty sailing boat. The hot sun is quickly sinking, so we can take off our large white hats and feel the cool evening breeze on our foreheads.

Look at the graceful date palms along the river banks (We must remember to taste some of those dates when we return.) Listen to the *shadoof* men singing as they work at their buckets, pouring the precious water into the ditches. Here comes a swarm of brown children laughing and shouting as they rush from



NOMAD ENCAMPMENT

the huts to wave their hands to us as we sail by. Can you see the women in black gowns with tall water jars on their heads? They are carrying water to prepare the evening meal.

Take my field-glasses and look across the river to the white sands beyond. What can you see? Some little black specks. Those are the tents of the camel-men. They live in the desert, wandering with their camels from place to place. Their tents are black because they are made of black cloth woven from goats' hair or camels' hair.

How quickly the sun has set! It is now almost dark. What can you see now? Thousands of red lights with snakes of smoke rising from them. The mothers are cooking the evening meal outside their huts. Soon the *shadoof* men, the children and mothers will be squatting on the ground with their bread and bowls of soup.

How dark it is! There is nothing to be seen now but the red glow from the fires, and there is nothing to be heard but the lazy flop, flop of the water as it ripples along the muddy river bank.

Bow, wow, wow! The dogs can hear us as we draw near our landing-stage. When the dogs stop barking how quiet it is! Another day has slipped by. To-morrow will come and the hot sun will shine down

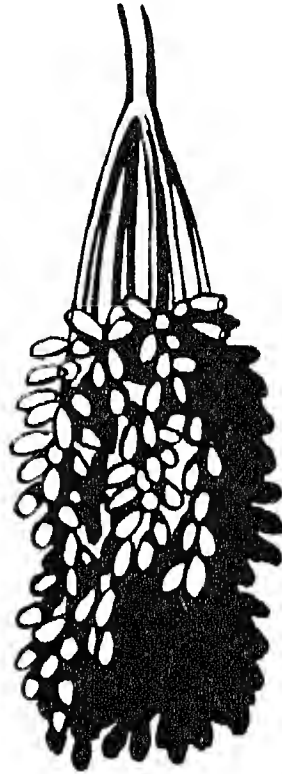


EGYPTIAN
PEASANT GIRL
(MODERN)

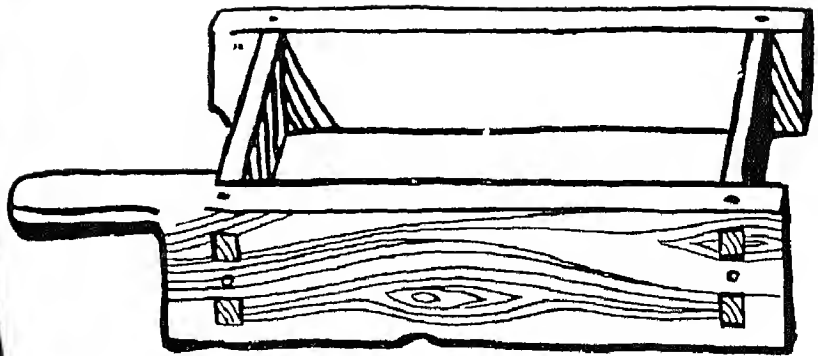
SKETCHES FOR THE BLACKBOARD



DATE PALM



BUNCH OF DATES



BRICK MOULD

on the *shadoof* men. The brown children will play, the women will grind their wheat and barley, the dogs will bark, and night will come down with the thousand red gleams from the fires. And to-morrow, and to-morrow and every day it will always be the same in the "Land That Never Changes."

TEACHING HINTS

1. Date palm.—This is the principal tree of Egypt and the Sahara. It grows only where there is abundant water and hot dry air. An old Arab proverb says: "The date palm, the queen of trees, must have her feet in running water and her head in the burning sky." The tree is not, however, found at its best in the Nile valley, but in Tunisia. The fruit is the staple food of the Arabs and other tribes of the Sahara; without it life would hardly be possible.

The date palm grows in the oases, because there it can send roots down to the abundant moisture in the soil, and because the temperature is high and the air is dry, for the fruit will ripen properly only in a very dry atmosphere. Palm trees are mostly grown from offshoots or "suckers" of other trees; they may be planted in rows or scattered about; the groves of date palms are known as gardens. Sometimes the gardeners who work for the owners, the wealthy Sheikhs, live on the oasis, often they live in towns, travelling to and fro to do their work. The title of Sheikh is given to the chief of a tribe or a village. He is a very important official, having the authority of a magistrate and a police inspector. Where the trees have been planted at wide intervals, other trees such as the fig, apricot, peach, olive, pomegranate and orange are planted under their outspread branches; under these fruit trees, are planted vegetables, such as the melon and cucumber.

2. Brick mould.—A sketch of a brick-maker's mould which was found in an

Egyptian tomb is illustrated on p. 59. A model can be readily made from a wooden or cardboard box by removing the lid and bottom and adding a handle. In country places in England one sometimes sees cow-houses built of "cob," that is clay mixed with straw.

3. Huts.—The children should understand that in such a climate as that of Egypt people spend practically all their days out of doors, and often sleeping on the roofs of their houses. Fires are made out of doors, as they are required for cooking, but not for heating purposes.

4. Singing.—Every traveller on the Nile remarks the haunting notes of the boy driving the bullock or camel which turns the water-wheel, and of the men working at the *shadoofs*.

5. Bedoun tents. There is an excellent illustration of Bedouins and their tents on sheet 12 of the portfolio.

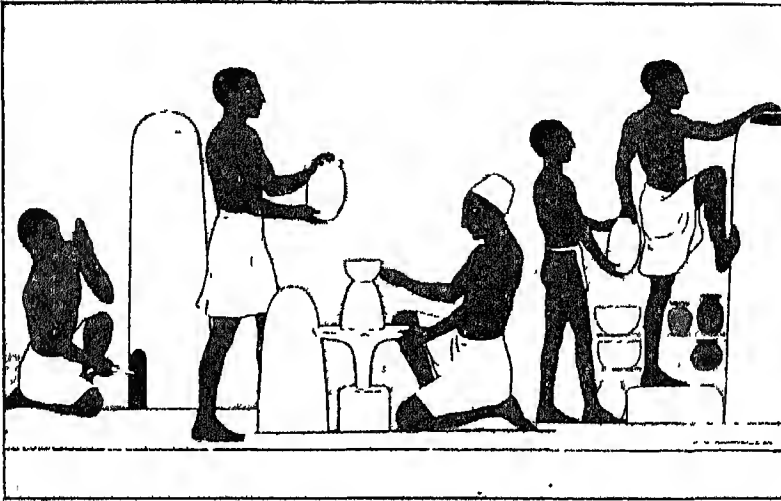
6. Soup.—A sauce made of onions and butter seasoned with herbs is generally prepared for meals. Bread made from coarse flour mixed with bean-flour is dipped into the soup.

7. Memory Work.—(a) The River-Men, who had few trees and no stones, built their huts of bricks. (b) They made the bricks from Nile mud, drying them in the sun. (c) Egypt is the "Land That Never Changes."

8. Exercises.—(a) Why did the River-Men build their houses of mud bricks? (b) Tell how a man makes bricks in Egypt. (c) How could you make sand castles with a pail without a bottom? (d) How could you make a brick mould from a small box? (e) Why do the River-Men need only small huts? (f) Why is Egypt called the "Land That Never Changes"?

VIII. POTS AND PANS

PICTURE REFERENCE



EGYPTIAN POTTERS OF THE PYRAMID AGE

THE Class Picture (No. 8 in the portfolio) is adapted from the above picture painted on a wall of one of the pyramids at Gizeh. The potter crouches before his horizontal wheel on which rests the jar which is being shaped. Two men at the right are filling a tall furnace with bowls and jars. At the left the furnace is already hot, for the man stirring the fire is holding up his hand to shield his face from the heat.

INTRODUCTION

The primitive races of mankind fashioned their pottery from such clay as they found on the surface of the ground, or in some river-bed. The clay was probably prepared in a rudimentary way by spreading it out on a stone slab, picking out any rocky fragments, then beating it with the hands, with stones or boards, or treading it with the feet to render

it fairly uniform in consistency. It was then fashioned into such shapes as need or fancy dictated. For many ages tools and methods remained of the simplest kind—the fingers were used for shaping vessels, a piece of mat or basket-work served as a framework for a larger vase. Some genius discovered that by starting to build up his pot on the flattened top of a boulder he could turn his support so as to bring every part in succession under his hand, and lo! the potter's wheel was invented.

In its simplest form the potter's wheel was a heavy disc pivoted on a central point. The disc was rotated by the hand of the workman as he squatted on the ground. This form of potter's wheel was the only one known until about the Christian era.

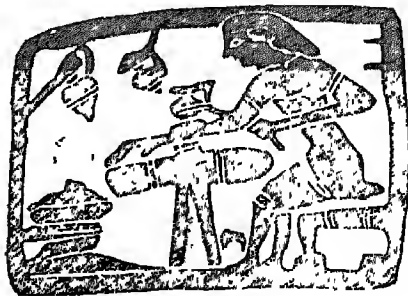
Pottery was not invented by one race alone. Wherever clay was found men became potters of a sort, just as they

became hunters, carpenters, smiths, etc., by sheer force of need

For centuries hand-made pottery was hardened by drying in the sun. Such pottery was useful for the storage of dried grain. When fire was used for drying the clay it was discovered that a baked clay vessel became as hard as stone and could be used for cooking food

Generally, primitive pottery was decorated with simple patterns of lines, dots, depressions, zig-zags, etc. Such ornamentation was scratched or impressed into the clay before it was fired. The simplest of all patterns was produced by pressing a twisted thong round the neck or bowl of a vase. Probably, the thong was used in the first instance to serve as a support while the vessel was being dried.

At a later stage the ornament was generally obtained by scratching with a tool, pressing the end of a hollow stick into the clay to form rows of circles, or by using a stick cut at the end into the shape of a half-moon, or by some other equally simple decorative device. In some tropical countries this rudimentary pottery becomes hard enough for a certain amount of use when merely dried in the sun, but in all northern and temperate countries it must have been fired. This was probably done in an imperfect way in an open fire, or in a kiln formed by sinking a hole into the ground. No primitive pottery reveals any trace of a



POTTER

Terra cotta tablet found at Corinth (about 600 B.C.)

The Potter is turning his revolving wheel (table) with his left hand, while with a tool in his right hand he fashions a small vase. Two finished vases hang on the wall

knowledge of glaze, though much has been highly polished after firing. In some cases a varnish has been applied, which may perhaps be regarded as the earliest kind of "glazing" ever applied to pottery vessels.

CHILDREN'S STORY

You have already been told that long, long ago Man lived very much like a wild animal. He had to eat his food off the ground, or put it on sticks and leaves, for he had no plate. He had to take it up in his hands, for he had no knife or fork. When he wanted to drink from a stream, or a spring, he had to put his mouth to the running water, or catch some in the hollow of his hands. The man who found a hollow piece of wood or a large shell which would hold water must have been greatly pleased, for this saved him a good deal of trouble in drinking.

Whatever should we do if Man had not found out how to make pots and pans! Fancy having breakfast, or dinner, or tea without plates, without cups and saucers, without jugs, pie dishes, pudding basins and such things! We should find it very awkward indeed to be without them. All these things—plates, cups, basins and so on—are made of clay which has been baked in an oven.

Was it Man or Woman who first found out that clay could be shaped into a bowl



PREHISTORIC
WATER-VESSEL
SHOWING
ZIG-ZAG PATTERN

and made as hard as stone by fire? We do not know the answer to this question, but we know that in many parts of the world where early Man lived, somebody found out how to make pots and pans.

In Africa and other places there are people living to-day much as the Lake-Men and River-Men lived long, long ago. Travelers who have been to Africa tell us how the people there make pots and pans, and we feel sure that the men of ancient times made theirs in much the same way.

Let us pretend that we are watching an African potter at work. He is sitting on the ground before his wooden hut, picking over the lumps of clay he has gathered in his basket. He pulls the lumps to pieces, picks out all the stones, and lays the pieces in the sun. He puts his clay, together with some fine sand and water, into a hole in the ground. He kneads the mixture together, thumping and squeezing it until it feels quite sticky.

Now he puts some leaves on the ground. He squats down in front of them, and from long rolls of clay begins to shape the collar of a bowl. Round and round go his hands, patting and squeezing, as he adds more and more rolls. One hand he keeps inside the mouth of the bowl and the other outside. When half the pot is shaped he stands it on the leaves to dry in the sun, but he keeps the bottom edge moist by surrounding it with more leaves.

When he sees that the first half is firm he turns it upside-down on the leaves and adds more and more rolls to form the bottom half. Round and round go his fingers, squeezing and pressing as before, with one hand inside the bowl and the other outside. As he shapes the bottom, the hole for his hand becomes smaller and smaller, till at last he can get only one finger inside. Then he finishes off the bowl by stopping up the hole. Again the pot is put to dry in the sun. Then it is fired along with other pots. To do this all the pots are set upside-down on the ground, and brushwood is spread round them. The wood is set on fire, so that

the pots are soon in the middle of a bonfire. When the fire has died out and the pots are cool they are ready for use.

It was indeed very clever of the men and women of long ago to find out how to make pots and pans. It would be good fun to get some clay and sand and make a bowl in the same way. How would you like to do this one day during the holidays?

In the picture is the drawing of a bowl that is about three thousand years old. (Blackboard sketch.) It was found in the Thames, and is now to be seen in the British Museum in London. Do you notice the curious marks on it? They were made by the finger-nail, or by pressing a twisted cord round the clay before it was baked. After Man had learned how to make pots from clay he would soon try to make them look pretty by scratching lines and patterns on them.

As the years went by, Man found out a great deal more about the making of pots and pans. It was not at all easy to make a pot with all the parts smooth and shapely by turning it round and round in the hands. How much easier it would be if only someone could find out how to make the *pot turn round by itself*. At last some clever Man made a potter's wheel. He took a flat piece of wood the shape of a plate and in the middle of one side he fixed a wooden stump. Now he had a small round table like an open mushroom. He made a hole in the end of the stump and fitted it over a peg in a block of wood on the ground. Now his mushroom would turn round and round on the peg at the end of its stalk. He placed his clay on the flat top of his little table; as he turned the table the clay turned round too. This was splendid. He sat in front of his potter's wheel, and as he shaped the clay bowl with one hand, he turned the wheel with the other. Round and round, as quickly as he pleased, the clay would spin. It was much easier work now, and the pots could be made a better shape.

Bonfires for firing the clay were apt to be troublesome. Sometimes the wind blew

this way, and sometimes that way, just as the wind will do. Some pots were burnt more on one side than on the other. Why not shut the fire up so that the wind could not blow it about? This is exactly what some men did. They built hollow furnaces of clay with a hole at the bottom for the fire. The pots were put into the furnace from the top, and a clay lid was put on to shut them in. Now the fire was lighted. No winds could reach it, and all the pots were nicely fired.

Look again at the old picture of the River-Men of Egypt with their potter's wheel and furnaces. The potter is kneeling on one knee before his wheel which he turns with the left hand while he shapes a bowl with his right. Two men on the right are filling a tall furnace with pots which are ready for firing. On the left a man crouches before a furnace raking the fire at the bottom. We can see that the furnace is very hot, because this man holds up his hand to shield his face from the heat.

TEACHING HINTS

1. Pottery.—It will be of immense value when taking this lesson to show how clay pots were actually made. Where clay or plasticine is available the children should themselves attempt to make models. No amount of explanation can equal a simple demonstration in such a lesson as this. (See the corresponding handwork lesson.)

2. Potter's Wheel.—A wooden bread-board is useful for demonstrating how the primitive potter's wheel was worked. A model of a simple wheel can be made in cardboard or wood. Fasten a disc about 8" in diameter of three-ply wood or stout cardboard on a large reel. Drive a long French nail through a baseboard and let the reel revolve on the spike of the nail. (See blackboard sketch.) In country schools some children will probably have seen the village carpenter busy turning a table leg on a lathe, and they will

readily understand that the lathe originated from the potter's wheel.

3. Neolithic Vase.—The vase illustrated is copied from a neolithic bowl found in the Thames at Mortlake. It is rather more than 6" across the top. The bowl was of thick dark ware with a hollow moulding between the angular lip and shoulder, and was ornamented by pressing a twisted cord, or the finger-nail, into the clay before baking. The shape of the bottom suggests that the bowl was propped on stones and used as a cooking vessel.

4. Firing.—The type of kiln used by the potters of ancient Egypt is still used in certain parts of the Near East and in Japan. When in the 18th century pottery manufacture was developed as a factory industry improved kilns were introduced. In modern practice a vertical furnace from 10 ft. to 22 ft. in diameter and of similar height is used, and such a kiln is capable of holding as much pottery as a medieval potter would have turned out in a whole year. Much progress is now being made with gas-fired kilns and ovens.

5. Memory Work.—(a) Man of long ago found out how to make pots and pans from clay. (b) Clay was mixed with sand and water, shaped by the hand into a pot, and hardened by fire. (c) In time Man found out how to make a potter's wheel. (d) We know from pictures that the River-Men of Egypt used potters' wheels and furnaces.

6. Exercises.—(a) Name all the things that you know are made from clay. (b) Tell how you would make a clay pot. (c) Tell how an old-fashioned potter's wheel is worked. (d) Why was it better to fire clay pots in an oven than in a bonfire? (e) In what ways were the people of long ago better off when they knew how to make pots and pans? (f) How do we know that people of long ago made clay pots?

SKETCHES FOR THE BLACKBOARD

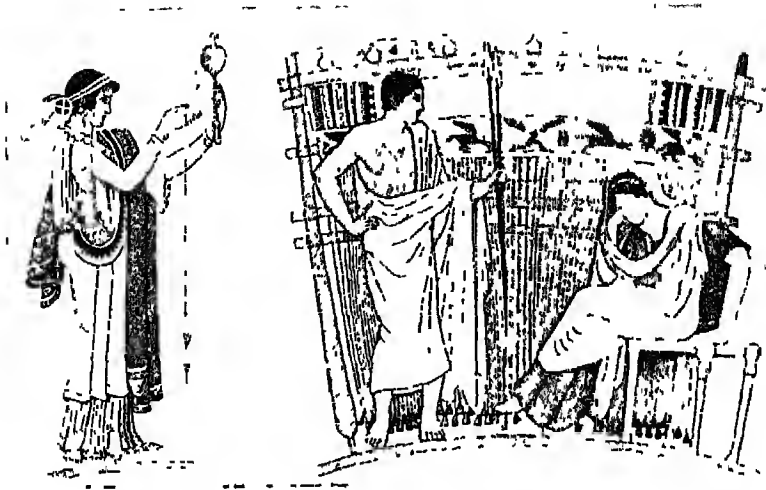


NEOLITHIC BOWL FOUND AT MORTLAKE (ENGLAND)

SIMPLE MODEL OF POTTER'S WHEEL

IX. MAN'S NEW CLOTHES

PICTURE REFERENCE



SPINNING AND WEAVING IN ANCIENT GREECE

THE Class Picture (No 9 in the portfolio) shows the domestic arts of Spinning and Weaving as practised in Ancient Greece. The figure on the left is adapted from a Greek vase of the fifth century B.C. The woman is holding in her left hand the distaff, and with the fingers of her right hand she is twisting fibres drawn from the wool.

The illustration on the right is also taken from a Greek vase of the fifth century B.C. It represents Penelope seated beside her loom, with one of the suitors (or her son Telemachus) before her. The row of rods fitted into sockets in the top framework is probably for holding balls of coloured wool. The band of winged figures is a piece of embroidery.

INTRODUCTION

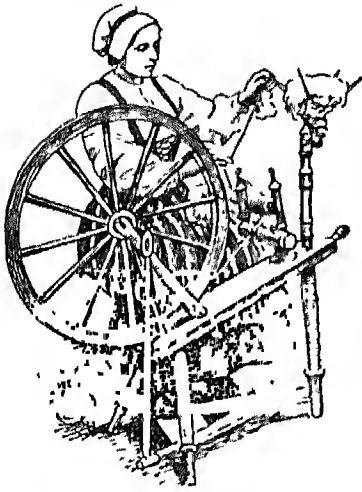
The story of this lesson deals with the arts of spinning and weaving, which are among the primal and universal employments

of mankind. Remains of implements employed in spinning (and sometimes spun threads) have been found among the remains of prehistoric man.

The spinner first opens out the matted raw fibres of the flax, wool or silk, pulls out the knots and dirt, and combs the fibres till they form a clean,



WOMAN WITH DISTAFF



SWEDISH PEASANT WOMAN
SPINNING (MODERN)

fluffy mass. She rolls up the mass and ties it lightly with a piece of yarn to a stick called the *distaff*. The spinning consists in drawing out the prepared fibres from the fluffy mass on the distaff, twisting them into a long thread and winding it up

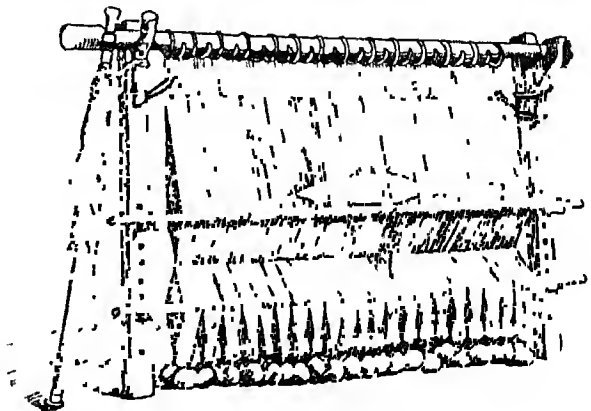
To commence the spinning the spinner holds the distaff under her left arm and draws out a number of fibres with both her hands, the number of fibres varying with the thickness of thread required. She twists the fibres together between her fingers and ties the end of the thread so formed to another stick called the *spindle*. The spindle has at its upper end a notch, and near the lower end there is attached a heavy weight, known as a *whorl*. The spinner holds the spindle suspended from the twisted thread; she gives the spindle a sharp twist with her right hand to set it spinning, and the heavy whorl at the lower end acts as a fly-wheel and keeps the spindle turning for some time. While it is hanging and turning, the spinner draws out some more fibres from the mass on the distaff, using both her hands. When the spindle slows down the spinner picks it up before it starts to turn in the

opposite direction, so that the twist that has been put on the fibres remains on them. She winds the twisted fibres on to the spindle and secures them by passing the last portion of the thread through the notch. She then drops and twists the spindle again, and the process of twisting the thread and winding it upon the spindle is repeated.

The simple spindle is a wooden stick, from nine to fifteen inches long, rounded and tapered at both extremities (see blackboard sketch). The whorl is a disc of wood, clay or stone with a hole through the centre. This apparatus, which was used in the earliest ages, continued to be used by civilised peoples till modern times, when the spinning-wheel was invented.

The main principles of weaving have been the same from earliest times. An early stage in its development is represented in the blackboard sketch. Long threads called the *warp* are hung from the top bar of a frame, or loom, and are stretched by weights (often of baked clay) attached to their ends; they are kept in place by yarn threaded through them near the bottom. The weaver threads the cross, or *weft*, threads over and under the warp, working from one side to the other. The stick which was used to hold the weft threads and to thread them through the warp was the first *shuttle*

(This is an illustration of weaving in its



PRIMITIVE LOOM AND DISTAFF
FROM THE FAEROE ISLES

simplest form, but it will be quite sufficient for a lesson to young children.)

During the course of a history lesson the children's interest can frequently be aroused by a simple explanation of some of the names which occur. In this lesson on dress, for example, one might note that the word "garment" really means a garnishment, or adornment; thus the object of dress is not only to clothe but to adorn. The word "robe" is connected with an old German term which meant "to rob," for "robes" were originally the spoils, most often clothes, stripped from a slain enemy. This old-world custom of robbing the slain is alluded to in the sonorous passage from the Song of Deborah (Judges v 30). "Have they not sped? have they not divided the prey? to Sisera a prey of divers colours, a prey of divers colours of needlework, of divers colours of needlework on both sides, meet for the necks of them that take the spoil."

The following Greek story of the first spinner will interest the children.

ARACHNE

Long ago, in a Greek city called Colophon, there lived a maiden named Arachne, the daughter of a dyer of purple cloth. Among all the maidens of Colophon none could weave so well as she, or embroider the cloth they wove with such fine patterns of flowers and trees, of men and women. Arachne's work was so beautiful that not only did the townspeople crowd around to see it, but even the shy nymphs of the woods and streams came stealing up to see her lovely handiwork.

All the praise she received made Arachne very proud, and the more her skill increased the prouder she became, till one day, sitting at her loom, she cried, "There is no needleworker in the world to equal me. Even the goddess Athena herself could do no better work than mine."

"Speak not so rashly, child," said a grey-haired woman who stood near. "Were Athena to hear you and appear at this

moment you would repent your foolish boast."

"Let her come," cried proud Arachne, "and we will see which of us is the better!"

"She is here and accepts your challenge," replied the old woman, as before Arachne's startled gaze she turned into the tall, handsome goddess.

Arachne dared not refuse, and the contest began. Two looms were set up side by side and before them the two workers sat silent, while their busy needles flashed in and out, and the wondering people crowded round to watch the pictures grow. At last they were finished, and it was easy to see which was the better. Arachne's picture showed stories of gods and goddesses, surrounded by a border of ivy leaves, and was as perfect as a mortal could make it. But in Athena's picture, which also showed gods and goddesses and was surrounded by a border of leaves from her sacred tree, the olive, the foam of the sea looked so real that women shrank back for fear of being wetted, and the faces of the gods were so stern that the children ran shrieking from them in fear.

With blazing eyes, Athena turned on her daring rival and rent Arachne's lovely needlework in two from top to bottom. Terrified and ashamed, the poor girl crept away, and in her misery she hanged herself. But Athena had repented of her wrath, and in pity she turned the rope into a cobweb and Arachne into a spider dangling at its end. "Now go," she said, "and pass the rest of your days in spinning webs in which to catch your food."

Such was the story of Arachne, as the Greeks told it, and whenever Greek boys and girls saw a spider they would remember the first of all spiders, who was once the proud maiden of Colophon.

CHILDREN'S STORY

Do you remember how Cave-Men made their clothes? They killed wild animals with their stone axes and spears, and used the skins to cover their own bodies. We

know that Woman sewed skins together and made some sort of clothes, because bone needles have been found in places where the Cave-Men once lived

At the bottom of some lakes have been found small stones and pieces of bone with holes through the middles of them. They are called *whorls*. Wise men tell us that these whorls were made by the Lake-Men, and that they were used by women of long ago to help them to spin thread. Thus we know that the Lake-Men made their clothes from something which they spun. This must have been wool from the sheep, or fibres which come from a plant called flax. Cloth made from flax is called linen.

Through the hole in each whorl there used to be a small stick. The stick was pointed at each end and it had a notch near the top. The whorl and the stick together was called a *spindle*. It was on the spindle that Woman used to wind her flax and wool

She took a small bundle of wool which had been cleaned and combed out, and stuck it on the top of another long stick which is called a *distaff*. She held the distaff under her left arm with the bundle of wool at the top.

Now she took a few threads of the wool, tied them to her spindle and let it dangle. With her hand she set the spindle spinning round and round on the end of the threads, which it would do very easily because of the heavy whorl. As the spindle turned, it twisted the thread. You can try this twisting movement for yourself. Tie a small weight, such as a door-key, at one end of a piece of string. Hold the other end of the string, and notice how you can make the key spin round and round, and how the string becomes twisted as you do it

The picture shows how Woman twisted her wool. She set the spindle turning and pulled out the threads from her bundle on the distaff as the spindle turned. When she had pulled out such a long piece of thread that the spindle nearly reached the ground, she picked the spindle up and wound the length of twisted thread round

it. To keep her thread from unwinding she slipped the last piece of it through the notch near the top of the spindle. She let her spindle dangle again, gave it a twist to make it turn, then pulled out more thread. She went on spinning in this way till she had wound as much wool on the spindle as it would hold

Now how did she make clothes from her threads of yarn? Having been so clever as to find out how to *spin*, she easily found out how to *weave*. Your own mother often does a sort of weaving when she darns a sock. She takes her yarn, which some spinner has got ready for her, and with her needle she lays a number of threads side by side across the hole. Then she turns round her work and with her needle crosses these threads, going over and under, over and under, in and out of them. We say that mother is darning, and you will soon see that weaving is much the same as darning

Here is a picture of an old-fashioned frame, or *loom*, used for weaving. (Black-board sketch.) On two upright posts rests a long crossbar of wood. From it the threads of yarn have been hung, and to make them hang tight and straight small balls of clay have been fastened at the ends of them. In place of the needle one end of the yarn was fastened to the *shuttle* which the weaver pushed in and out, over and under across the frame of threads, just as mother does with her needle when she darns socks.

Look at your own coats or scarves and you will see how they are made by the weaving of threads in and out. So too are all the clothes you wear. Some are made of cotton, some of flax, some of wool and some of silk.

Do you not think it was very clever of the men of long ago to find out how to spin and weave their clothes? Some of their clothes were very beautiful, too. The River-Men of Egypt made the finest linen that ever was made. They used it to wrap round the bodies of their dead. You can go to the British Museum and see some of this fine linen.

Now look again at the pictures of Greek women. The one on the left is holding in her left hand a distaff on which is a ball of flax. With her right hand she is twisting the fibres to make a long thread. Look for the whorl in the spindle which is fastened to the end of the thread. Notice her long flowing woollen garments. No doubt she made them herself. This picture was painted on a vase nearly 2,500 years ago. The Lake-Men of Europe lived long, long before this Greek spinner, and that is why she was able to weave such fine clothes, for men and women had found out a great deal since the Lake-Men lived.

The lady sitting on the right is another Greek, named Penelope. She sits beside her loom looking far too sad and weary to do any weaving. Penelope had good reason for being sad. Her husband, who was a brave, strong man, had gone away twenty years before to fight, and he had not yet come back. Penelope loved her husband dearly, and she felt sure that some day he would return. Many rich men came to her and asked her to marry one of them because they believed that her husband was dead. Penelope would not do this, and to stop their worrying her she said, "I am busy at my loom weaving cloth, but when the cloth is finished, if my husband has not come, I will marry one of you."

Penelope did not mean to finish the cloth at all. Every night, when she was alone, she undid the weaving that she had done during the day, so that the cloth should never be finished. Unluckily, one of the men found out her trick. He told the others and they were very angry.

"Very well, then," said Penelope, "I will marry the man who can bend my husband's great bow, and to-morrow you all shall try."

When to-morrow came each man tried in turn to bend the bow. But no man was strong enough. There chanced to be a beggar in the hall, and he asked to be allowed to try. Quickly he bent the great bow, and turning on the others shot them

dead, or drove them out of the house. Can you guess who the beggar was?

The Greeks loved this old story of Penelope and her strong husband, and someone painted on a beautiful vase this picture of her sitting at her loom. The Greek standing before her, with the spears in his hand, is her son.

TEACHING HINTS

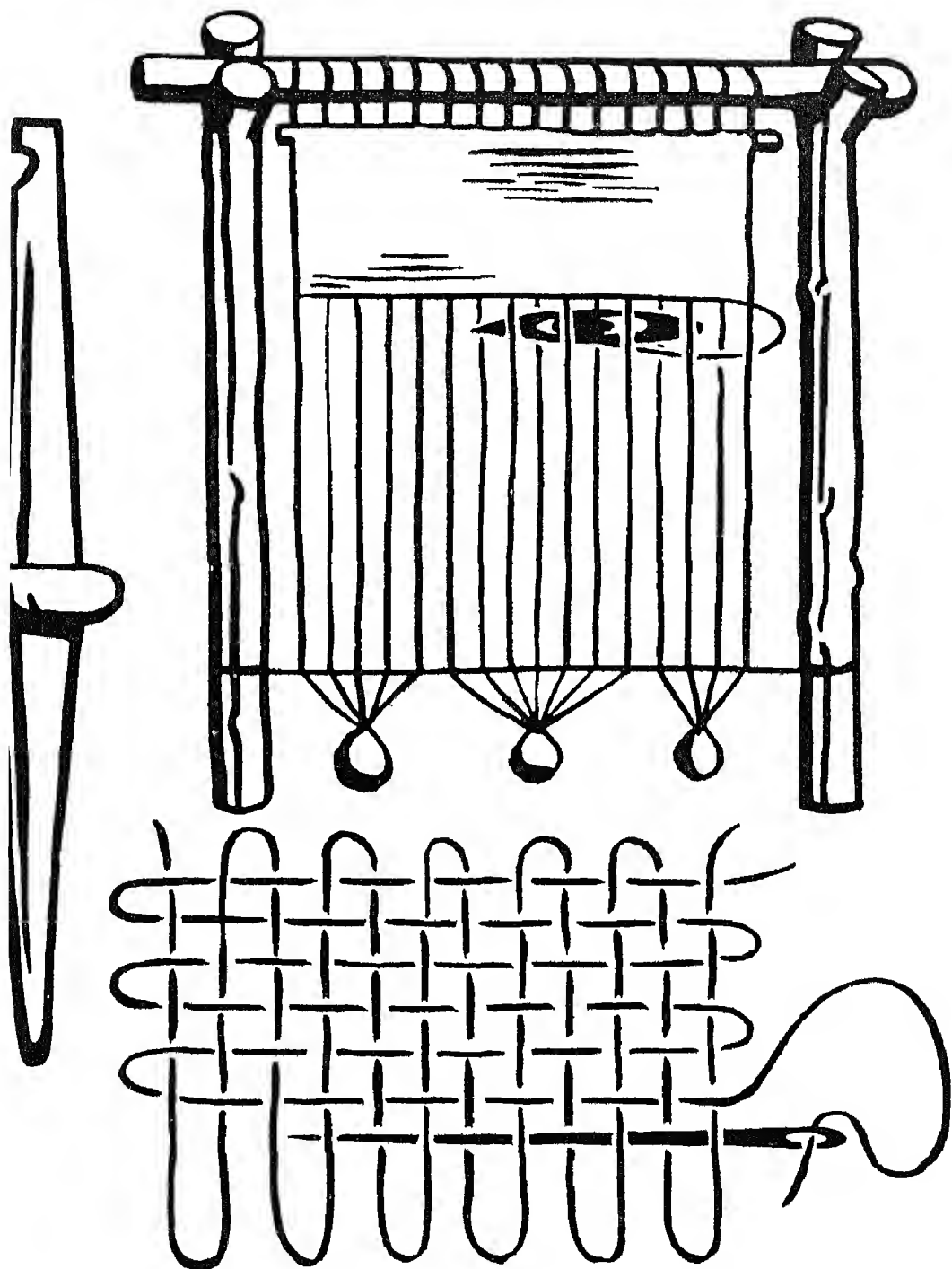
1. Spindle and Distaff.—Make a spindle from a stick and a small piece of clay or plasticine, and show how it was used for spinning. If possible let the children make models of their own. Put a ball of wool on the end of a stick and let children experiment in holding the "distaff," and spinning the thread. Some children will have seen shoemakers twisting strands of tow into threads, by rolling them on the leg.

2. Flax and Wool, etc.—Most children confuse the names calico, linen and woollen cloth. It is as well (even in a history lesson) to see that such common names are properly understood. The terms are sure to arise again in the geography lessons.

3. Weaving.—A model such as that illustrated in the blackboard sketch can readily be made. If the wood is prepared beforehand it will take only a few minutes to demonstrate exactly how weaving was done. Where weaving is taken as a handwork course the art will be already known.

4. Greeks.—Point out Greece on the map. See that children clearly understand that a very long time had passed since the Lake-Men first lived in Europe. Note, too, the progress that has been made in the art of pottery. It is advisable to mention frequently the exhibits to be seen in museums, and the children should be encouraged to visit them when possible. The story of Penelope and Ulysses is told in Vol. II, page 50.

SKETCHES FOR THE BLACKBOARD



SPINDLE

LOOM

WEAVING

5. Memory Work.—(a) In places where the Lake-Men once lived whorls used for spinning have been found (b) We know that the Lake-Men knew how to spin yarn from flax and wool, and how to weave yarn into cloth (c) The River-Men of Egypt made the finest linen. (d) On some Greek vases pictures are shown of women spinning and weaving. One of these vases shows Penelope sitting at her loom.

6. Exercises.—(a) Tell how you would make a spindle if you were given a small stick, a lump of clay and a knife (b) Take a piece of string or cotton in your fingers, look at it carefully and say what you notice. (c) What is a distaff? (d) Without looking at a picture, tell how a simple loom was made (e) How do we know that the Greeks made beautiful vases? (f) In the Greek story of Penelope, who was the beggar who bent the bow?



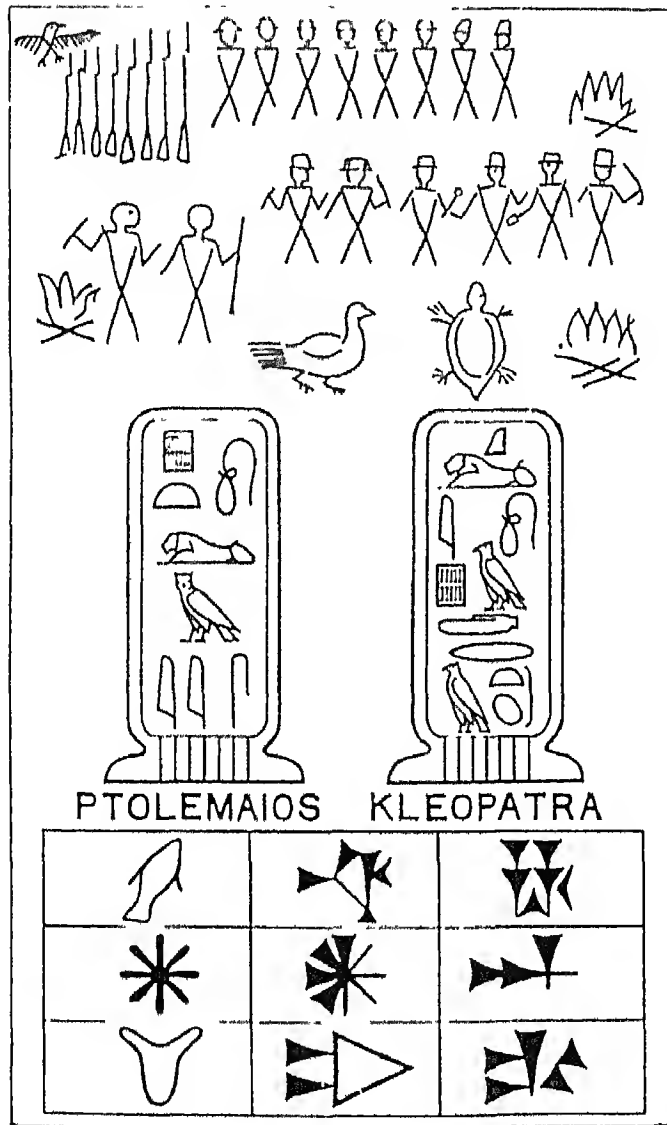
SPINNING

From a red figured Attic vase at Orvieto Fifth century B C.

The girl holds the distaff in her left hand. She wears a long chiton, covered by a mantle which is wrapped round her body so that its end passes over her left shoulder and hangs down her back. Behind her is a chair without a back, in front is a wool-basket, while a flute case hangs on the wall behind.

X. WRITING

PICTURE REFERENCE



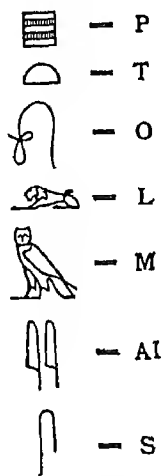
THE illustration (it is not in the portfolio) shows a Birch Bark Inscription of North American Indians, the cartouches of Ptolemy and Cleopatra in

Egyptian hieroglyphics, and a diagram illustrating the development of Babylonian Cuneiform Writing from picture-signs

The American Indian inscription has

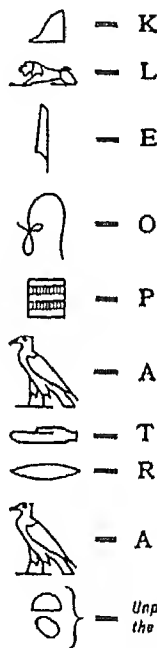
reference to an exploring expedition to the sources of the Mississippi near Ford du Sac, Minnesota, in the summer of 1820. The expedition consisted of six persons with two Indian guides. On the morning that the party was leaving the camp, a small strip of birch bark containing the devices illustrated was observed elevated on top of a split sapling some eight or ten feet high. One end of this pole was thrust firmly into the ground, leaning in the direction the party was going. The device was a symbolic record of the circumstances of the night's encampment. The drawing depicted the commanding officer with his sword, the mineralogist, the interpreter and three other officers, and eight soldiers with their guns. All of these were drawn with hats on—the distinguishing mark of the white man. The two Indian guides were drawn hatless. The three camp fires indicate the number of days the party spent in camp. The birds and tortoise are tribal signs. The object of the record was a notification to other Indians of the presence of this party of white men.

The diagram below shows the hieroglyphic spellings of Ptolemy and Cleopatra paired with the corresponding Greek spellings, in English letters,—*Ptolemaios* and *Kleopatra*. The ovals, or *cartouches*, indicate that the hieroglyphics contained in them spell royal names. These cartouches occurred in a hieroglyphic writing on an obelisk which also bore an inscription in Greek. From the substance of the Greek inscription Champollion concluded that these royal names must be those of Ptolemy and Cleopatra. He then discovered that, as we see from the diagram,



PTOLEMAIOS

their hieroglyphics corresponded with the Greek spelling, for the signs which should represent the Greek letters, P, O, and L are the same in both cartouches, and the sign for A is repeated in the cartouche for Cleopatra, exactly as in the Greek spelling of these words. Thus Champollion proved that the Egyptians possessed an alphabet (though incomplete, for some of the vowels were missing), of which he now knew twelve letters.



KLEOPATRA

The diagram of the Babylonian writing shows how the original picture-signs became modified and simplified to form wedge-signs, which could be readily impressed with a reed on a damp clay surface. In the first column are the oldest forms of the pictures of a fish, a star and the head of an ox. In column two we see the departure from the pictures, and the appearance of the signs as the lines began to become wedges. (Note that the

over in the second column.)

In column three are the later forms, consisting of wedges which show no resemblance to the original pictures.

INTRODUCTION

The development of writing may be ascribed to two pressing needs which arose very early in the history of man. The first need was for an aid to the memory; the second was to communicate with absent persons.

The use of *knots* as an aid to the memory has existed from very early times. The simplest application of these knots is to keep a record of a number. Herodotus relates how Darius, on crossing the river Ister on one of his military expeditions, left with the Greeks appointed to guard the bridge a knotted thong. The number of knots was equal to the number of days that their watch was to continue. One knot was to be undone each day, and if the king had not returned by the time all the knots were undone, the Greeks were to break down the bridge and go away.

The Peruvian *quipu* was a development of the knot system. It consisted of a number of cords hanging from a cross-bar. In the simplest form of quipu the knots were tied in the cords and served to indicate numbers. In elaborate forms the cords were of different colours and knotted to make open loops of various shapes, and the quipu was used to convey messages. In these elaborate forms the message was probably understood from the quipu itself, without the need of interpretation by the messenger who carried it.

Similar in character to the quipu was the *notched stick*, which was used among the American Indians to record various incidents. A branch of a tree was taken and notches were cut in it, in early times with a mussel shell, and later with a knife. The notches indicated, for instance, the number of days spent on a journey, or the number of enemies slain in battle. The *wampum belt*, consisting of strung beads, was used for the same purpose. In the elaborate forms the colour of the beads denoted the character of the incident,—white for peace, purple for war.


The *message-stick*, which is still in use among the natives of Australia, is another use of the simple notched stick. The stick is carried by a messenger and the notches serve as an aid to his memory. The following was the method of the Wotjoballuk of the Wimmera river in Victoria: "The messenger carried the message-stick in a net-bag, and on arriving at the camp to which he was sent, he handed it to the headman




at some place apart from the others, saying to him, 'So-and-so sent you this,' and then he gave his message, referring as he did so to the notches on the message-stick."

From the simple mnemonics of sticks and beads we come to the higher art of *picture-writing*. Picture-writing has left its traces in all parts of the world. It has, however, been most widely developed in the New World as a system lasting down to modern times. The Dakota Indians in comparatively recent times invented a chronological table wherein each year was recorded by a picture of some important event which befell during that year. For example, a rough outline of a head and body spotted with blotches showed that in that year the tribe suffered from smallpox. The civilisation of the American Indians was nowhere very high, and for their simple needs this system of picture-writing sufficed. The only development was that of a little symbolism.

It was different in the more elaborate civilisations which prevailed among the ancient people of the Old World,—the Assyrians, the Egyptians and Chinese,—to whom the development of writing from pictography can be ascribed. Here more complex notions had to be expressed. The development of the system can be traced through many centuries. For convenience we have chosen the development in Egypt.

The hieroglyphic writing of the ancient Egyptians stands pre-eminent among all the systems of picture-writing that the people of any age have devised. It is the one that has given its own name to all such systems of writing. The exact period of time when the Egyptian hieroglyphs were evolved is not known. Herodotus, who saw them in the sixth century B.C., called them by their own Egyptian name, which he translated into Greek, hieroglyphics, or "sacred writings": from *hieros*, "sacred," and *glyphein*, "to carve." Before the Greeks had emerged from barbarism, the hieroglyphs had been in use as a national writing in Lower Egypt for many centuries.

Two steps had to be taken before picture-writing could become phonetic writing. First, each object drawn had to gain a fixed form recognisable as the picture for a particular word. The pictorial symbols gradually became converted to conventional signs, simple line forms which could be easily drawn, e.g. the sign  always

represented the mouth, the sign  a reed; the sign  a knotted cord. The second step was the use of certain signs to indicate sounds, which might be whole words, or parts of words. The particular sound indicated by each sign was the sound of the original word it represented. For example (using English words) the symbol  no longer stood as a picture for the insect *bee*, but for the sound *be*, as in the words *become*, *belief*, *behave*. Thus the picture became a *phonetic* sign.

When a large number of pictures had become phonetic signs, each representing a syllable, the Egyptian could write any word. If his writing, like that of the American Indians, had remained merely a series of pictures, he could not have represented such abstract words as *truth*, *beauty* and *love*, but when his signs represented sounds he could write any words he chose. Thus arose among the ancient Egyptians the first real writing.

From the sound-signs there was a gradual and incomplete transition to an alphabet. For example, the sound *be* would be converted to the letter *B*. But the Egyptian language never became wholly alphabetic, as the Western languages are. The tendency towards a decorative writing was apparent throughout all the stages of Egyptian writing. The Egyptian scribe preferred pictorial symbols to the cut-and-dried letter signs; he was an artist,—a purely alphabetic language would sorely have cramped his style and his imagination.

Thus in this Egyptian word the first three signs are *ch*, *g*, *r*; there are no vowels. The



word means *pauper* (literally, *hungry*). As the word denotes a person, the Egyptian adds a kneeling man at the end. Before him is another man with his hand to his mouth, an indication of hunger. These two pictorial signs of men are survivals of the old pictorial writing. They have no phonetic value and are called determinatives.

For long ages the hieroglyphic inscriptions in the pyramids and temples of Egypt were undecipherable. It was not until Napoleon's invasion of Egypt at the end of the eighteenth century, that chance circumstances provided a key to the mystery. In the year 1798 a young French artillery officer, Boussard, discovered near Rosetta the now famous Rosetta Stone. This stone was a slab of basalt containing inscriptions in hieroglyphic, demotic and Greek writing. The Greek writing could be read, but the hieroglyphic, the sacred writing of the monuments, and the demotic, the simplified writing of the trading classes were undecipherable.

Thomas Young was one of the first successful workers at the decipherment of Egyptian hieroglyphic inscriptions; by 1814 he had completely translated the demotic text of the Rosetta Stone, and a few years later had made considerable progress towards an understanding of the hieroglyphical alphabet.

He was succeeded in the work by a very clever French scholar named Champollion, who noted that the name of Ptolemy, plainly read in the Greek inscription, was contained in the cartouches, or ovals, which were several times repeated throughout the hieroglyphic inscription. Champollion had previously seen an obelisk (now in Corfe Castle) with many cartouches among the hieroglyphics.

At the base of this obelisk were two inscriptions in Greek, a petition by the priests of the Temple of Isis, to Ptolemy II., consort of Queen Cleopatra, and the reply of the king. Champollion noted the similarity of the cartouches of Ptolemy on the Rosetta Stone and on the obelisk, and subsequently identified the cartouches of Cleopatra. By the help of the common letters in the two

names he was able to assign phonetic values to twelve different hieroglyphic characters. He was soon able to make use of the Rosetta Stone to increase his list of signs and to learn the meanings of words and the construction of sentences. Champollion's marvellous achievement laid the foundation of the science of Egyptology, and restored to the world a lost chapter of human history some 3,000 years in length.

From the Egyptian writings on the walls and ceilings of the tombs we have obtained valuable and intimate records of the Egyptian peoples. Among the objects preserved in the tombs have been found priceless papyri, examples of which are scattered through the museums of Egypt. Some of these papyri are very long; that of Nebsem of Thebes, 1600 B.C., is 77 feet long.

CHILDREN'S STORY

When Man lived a very simple life, like an animal in a cave, he had little need to talk. He made noises with his voice to show that he was pleased, or angry, or to show that he liked the flesh he was eating, or the ripe berries his wife had gathered. Man could make many more sounds with his voice than any animal. You know that a puppy generally says, "Yap, yap!" but a baby soon makes several sounds such as "Dad-dad, goo-goo, puff-puff," and so on.

We think that very, very early in the world's story Man learnt to make sounds to tell his family what he wanted to have, and what he wished them to do. In this way he learnt to talk, just as baby does. Man got into the habit of using certain sounds always to mean certain things. Such sounds are called *words*. He taught his children to use the same words, so that he and his wife and children could understand one another.

In time Man found that talking was not always enough for what he wanted to do. Things that were said could be easily forgotten, and there were some things Man wanted specially to remember. He wanted, perhaps, to remember how many days it took

him to go on a journey to a place where some sweet fruit grew. So he took a stick and made little notches in it with a sharp shell,—one notch for each day of his journey. He kept the stick in his cave, and when he wanted to fetch some more of that fruit he could find out at once from his stick how long he would be away.

The dark-skinned native men who live in Australia still use notched sticks. If the Australian native wants to send a message to his friend in the next camp he calls his messenger and tells him what he must say. He makes a notch in a stick for each thing the messenger must remember, and gives him the stick. The messenger puts the stick in a net bag and sets out for the friend's camp. When he arrives there he hands his stick to his master's friend, saying, "My master sends you this." Then he gives his message. If there are five notches on the stick the man knows that the messenger has five things to tell him. The notches do not tell the man what the message is, they only help the messenger to remember it.

Man of long ago went on thinking and he found out a more useful way of sending a message to a friend at a distance. He took a piece of bark that had fallen from a tree, and on the soft inside of the bark he scratched a picture-message with a sharp stone. This was a message that could not be forgotten. The Indians in America use this means of sending a message to-day.

Suppose an Indian wants to tell his friend that his tent has been robbed and that he is wounded. On a piece of bark he draws a tent



For the robber he draws a noose, because robbers are punished by being hanged, and his friend will understand that a noose means robbery.

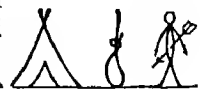


To show that he is wounded he draws a little man with an arrow through his body.



Here is his message which means, "My tent is robbed and I am wounded."

At the top of the picture



(draw a B.B. sketch) is a message which was written on bark by an Indian. He wrote the message to warn other Indians that a party of six white men, two native guides and eight white soldiers had been three days in a camp. Can you read this from the pictures? We know that they are white men because they wear hats. American Indians, like the two guides with sticks, did not wear hats. You can easily guess who are the soldiers from their guns, and they are white soldiers, because they, too, wear hats. The three fires show that the party has been in camp for three days. To let his friends know who wrote the message the Indian drew the pictures of a tortoise and two birds. These he always drew on his messages just as we sign our own names when we write a letter.

In the wonderful land of Egypt a great deal of picture-writing has been found carved in stone. (Draw the two cartouches on the B.B.) Here are the names of a king and a queen of old Egypt. The Egyptians always wrote a royal name with an oval shape marked round it, as you see there. It was not very long ago that a clever man found that these signs spelt the names Ptolemaios, the king, and Kleopatra, the queen. As you see, the signs of the square, the loop and the lion appear in both ovals. That is because these signs stand for the letters P, O, and L, which are found in both names.

From the old pictures we learn how the ancient picture-writing slowly changed to writing that is more like our own.

First the pictures became more simple. They changed to *signs*, which did not take so long to draw as pictures do. Suppose in the old picture-writing the Egyptians used the picture of a man carrying a basket. The man came to be left out, and the picture changed to a sign, showing a basket and a pair of legs. The sign would not now mean

"man carrying basket," but just the one word "carry." We see that the picture 1 has changed to the sign 2.

The picture 3 of a branch of a tree became the sign 4 which meant "wood."

The picture 5 which meant "a man is looking," became the sign 6, which meant "eye."

After a long, long time another change

slowly took place. Some of the signs began to mean not only the words which they stood for, but they also meant the *sounds* of those words. You can see how this would happen if we put the Egyptian signs for English words. The sign which meant "wood," came to mean also the *sound* of the word "wood," as in the words "would," "wooded" and "wooden." The sign which meant the insect called the bee, came to mean also the *sound* *be*, as in the words "believe," "behave" and "behind." The sign which meant "leaf," came to mean also the *sound* *leaf*, as in the word "relief."

Here is an English sentence written in sign-writing:



In this sentence the words *I*, *believe* and *would*, are written in sound-signs, the words *cat*, *carry* and *basket* are just what the pictures show.

As time went on, the clever Egyptians made their writing even more different from the old picture-writing. The signs began to stand, not for the sounds of whole syllables, like *be* and *lieve*, but for letters only, like *b* and *l*. Then men learnt to spell, for

at last they had letters, and you cannot spell without letters. Perhaps you have never thought that it had taken people many, many thousands of years even to think of an alphabet, or the A B C, as children sometimes call it.

TEACHING HINTS

1. Development of Writing.—This chapter will require a clear and unhurried explanation, especially of the last part—that dealing with the formation of an alphabet. For a backward class the consideration of sound-signs may be omitted altogether. It is essential that each step should be illustrated by copious examples from the children's own experience. The steps in the development of writing dealt with in the chapter, together with examples for the class, are set out below in a convenient form for reference. One or more of the stages may be omitted at the teacher's discretion. Children will be greatly interested and will readily provide further examples if due time is given to each step.

(a) *Simple aids to memory*—The first step towards writing was to supplement speech by the use of devices to aid the memory. A detailed account of various mnemonics used by primitive man is given on page 75. This may be told to the children if time permits. Children employ many devices to aid the memory, common examples are—knots in the handkerchief, changing of a ring from one finger to another; putting a brooch on upside down; writing in soap on the looking-glass; changing a watch from one wrist to the other, etc.

(b) *Picture-writing and word-signs*—The next stage was to devise a sign which would convey a message in itself. The simplest sign was naturally a picture of the object of the message. Road signs are outstanding modern examples of such picture-writing. The children may be allowed to draw upon the blackboard the signs which denote *cross-roads*, *dangerous corner* and *school*. It should be pointed out how these picture-signs have been simplified and standardised so that they are simple to draw, and easy

to understand without confusion with one another. The use of trade-marks, the royal crest and shop signs, is also a method of conveying a message in pictures. Reference may be made to railway signals, fog signals, lighthouses and bugle calls, by which messages are conveyed by sights and sounds.

(c) *Sound-signs*.—All the modern phonetic systems are based upon the sound-sign principle, and if phonetics are taught in the school the children will have no difficulty in understanding the significance of a sound-sign as opposed to a word-sign. The rebus which is the subject of many children's competitions nowadays is a splendid example of the use of pictorial sound-signs. The words *buttercup*, *idea* (eye, dear), *sandwich* (sand, witch), *pothook*, *myself* (mice, elf), are a few examples which the children can readily write as rebuses.

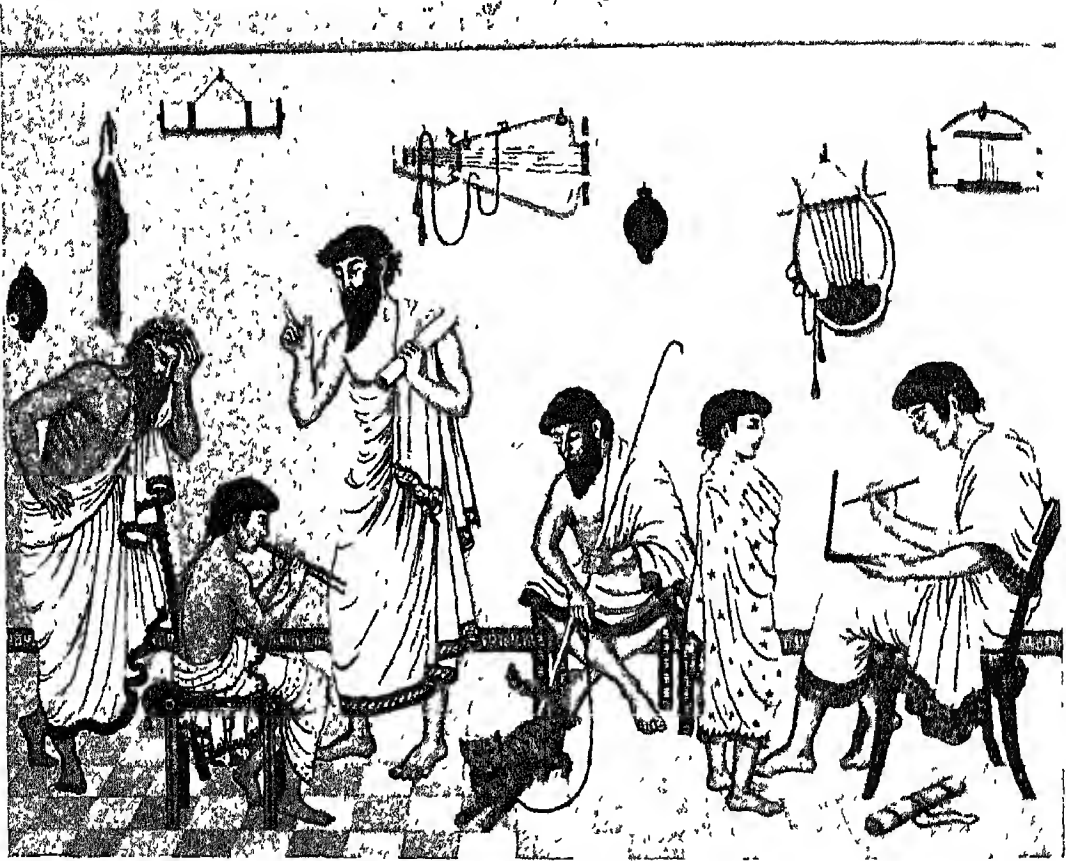
(d) *Alphabetical letters*.—This is the final stage in the development of writing. The children should understand that the Egyptians did not use a complete alphabet as we know it, they were fond of decorative writing, and retained many of their pictures for their beauty.

2. Memory Work.—(a) Long, long ago Man could not talk. (b) When he learned to talk he cut notches in sticks to help him to remember. (c) Then he drew pictures which his friends would understand. (d) Later, his pictures became signs, which in turn became letters.

3. Exercises.—(a) Why does a boy or girl sometimes tie a knot in his or her pocket-handkerchief? (b) Draw the names *Daisy*, *Abel* and *Ramsgate* in pictures. (c) Draw this message in pictures as the Indians do: "A dog has been to my tent and has torn my coat." (d) Draw a *cat*. Now change your picture into a sign by drawing a *cat's head*. (e) What signs on a clock face remind you of your fingers? Draw your hand to show the sign V. (f) Name all the words you can with the sound *lo* in them, like *lowing*. (g) Name all the words you can that have in them the sound *in*, like *instep*.

XI. PENS, INK AND PAPER

PICTURE REFERENCE



GREEK BOYS AT SCHOOL
(Class Picture No. 10 in the portfolio)

INTRODUCTION

Babylonian Writing.—In Babylonia the ancient picture-writing developed into a style very different from that of the Egyptian. In its final form it consisted of groups of wedge-shaped lines, with the wider part of each edge at the upper or left-hand end.

From this wedge-shaped character the Babylonian writing is known as *cuneiform*

(*L. cuneus*—a wedge). At the bottom of the illustration on page 73 the diagrams show how the ancient picture-signs became modified and simplified to form wedge-signs.

The wedge-shaped character was due to the curious writing materials and the method of writing employed by the Babylonians. The Babylonian wrote with a reed on a flat oval, or disc of soft clay. The reed

had a blunt, square-topped end, and was held upright in the hand. The tablet was inclined at an oblique angle, and the scribe pressed one corner of the square tip of the reed into the clay. Each stroke was made in this way; there was no scratching movement used. Owing to the tilt of the tablet,

Museum. Letters were enclosed in clay envelopes, addressed to the recipient. To prevent the clay envelope from adhering to the written surface, the writer sprinkled a handful of dry powdered clay over the wet tablet. Instead of signing his name to a document, the Babylonian used a



BRICKS WITH CUNEIFORM WRITING OF SHALMANESER III, KING OF ASSYRIA
Babylonian Room, British Museum

each line thus appeared wider at one end than at the other, making it triangular, or wedge-shaped.

The clay tablets, when dried in the sun, became very hard, and if baked in an oven, almost imperishable. Many thousands of these clay tablets have been found, and a large number can be seen in the British

seal, which was in the form of a little stone cylinder engraved with pictures and sometimes bearing also his name. He rolled the cylinder over the soft clay, leaving an impression which served as his signature (There is an illustration of a Cylinder Seal, probably that of Darius the Great, in Vol. II., page 71.)

The Development of the Alphabet and Modern Writing Materials.—The Egyptian hieroglyphics came to have their outlines more and more abbreviated, and to assume the form of a cursive script. There were two stages in the development of the cursive script. The cursive script, known as *hieratic*, appears as early as the First Dynasty, and its style varies much at different periods. About the Twenty-Sixth Dynasty, which inaugurated a great commercial era, there was something like a departure from the hieratic form to the most cursive form afterwards known as *demotic*. Hieratic was thenceforth used almost exclusively for the copying of religious and traditional texts. Clement of Alexandria states that in the Egyptian schools the pupils were first taught the demotic style of writing,

secondly the hieratic, (which was used by the sacred scribes) and lastly the hieroglyphic.

The Egyptian devised a convenient equipment for writing. He made ink of finely powdered colour solidified with gum. He used two colours of ink, black and red,—

the red was used for contrast, especially in headings. The early scribe wrote with a reed pen having the end frayed to make a little brush. In course of time the pen became finer, enabling the scribe to write very small signs. Demotic was usually written in a very small hand. Later still a pointed split reed was used. The early scribe's outfit is shown in the hieroglyph above.

In this we can see the reed, a palette with two depressions for inks, and a small pot of water. The outfit was often carried slung over the shoulder.

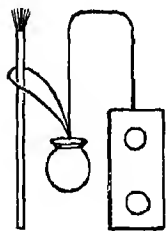
Egyptian "paper" was prepared from the river reed, papyrus. It was made by laying thin slices of the stem with their edges overlapping across other slices at right angles to them. The whole was moistened with water, pressed down, and the

rough places smoothed off with ivory or a smooth shell. The slices were glued together, either by the natural gum contained in the fresh stems, or by some other adhesive, to form a tough, white or ivory-coloured sheet.

We saw that the Egyptians did not perfect their alphabetic system, but as early as the tenth century B.C. the Phoenicians appear to have been in the possession of a true alphabet. The Phoenicians do not seem to have invented their alphabetic signs; until lately it was generally believed that they borrowed them from the Egyptians, but recent discoveries in Crete suggest that that island was the source of the Phoenician alphabet. This contained twenty-two alphabetic signs for writing the Phoenician language. Each sign represented a single consonant, there were no signs for vowels, which remained unwritten. The letters were arranged in a fixed order, and each letter was given a name. The first letter was called *ox*, because the Phoenician word for ox (*aleph*) began with the first letter. The second letter was called *house* because the Phoenician word for house (*beth*) began with the second letter, and so on. Our old English primers were arranged on somewhat the same lines: *A* for *archer*; *B* for *baby*, etc. The Phoenician children when learning their letters would say, *aleph, beth*, etc.

For materials the Phoenicians used the reed and papyrus imported from Egypt. They did much to spread the knowledge of the alphabet to other lands. They traded throughout the shores of the Mediterranean, and wherever they went they took their alphabet.

From the trading Phoenicians the Greeks learned their alphabet. There were letters in the Phoenician alphabet which did not exist in Greek speech, and these the Greeks began to use for Greek vowels. They thus took the final step in the process of devising a complete alphabetic system. The Greek children, in learning to read, used for the letters Phoenician names slightly altered. Thus they said *alpha, beta*, instead of



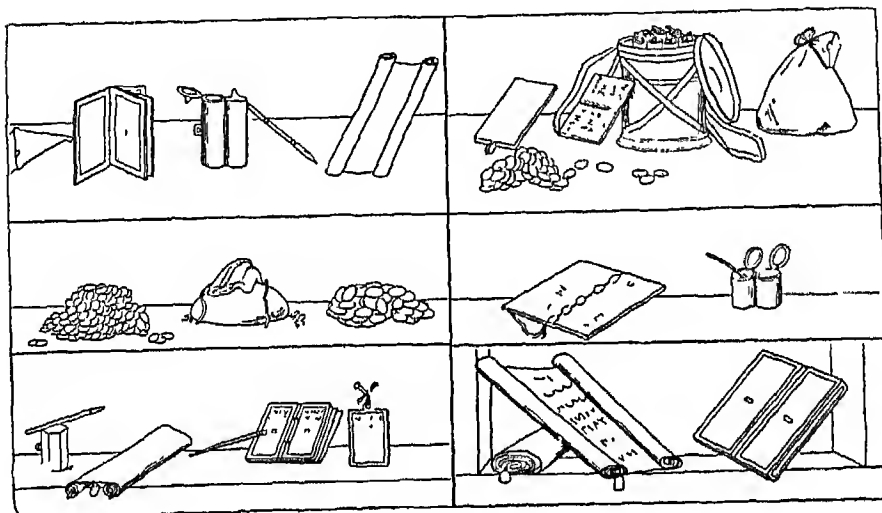
aleph and *beth* From these two names of letters is derived our word *alphabet*. Some of the stages through which the picture-sign of the ox head passed to become the Latin A are illustrated in the blackboard sketch.

The art of writing slowly spread through the Greek states For a long time it remained only a convenience in business and administration. For centuries the nobles, unable to read or write, regarded writing with misgivings We know, however, that the

of such paper they called them *biblia*. It is from this term that we received our word *Bible* (literally *book* or *books*).

For pens the Greeks used a pointed split reed Children at school learned to write their letters and first words on wax tablets with a metal stylus. As they progressed in the art they wrote on papyrus.

Parchment, made from the skin of goats, sheep, pigs and other animals, was in use before the time of Christ, and is still used for certain legal documents Paper prepared



COUNTING-HOUSE WRITING MATERIALS

Pompeian Wall-painting

The objects in order are (1) tablet, double ink pot, pen and manuscript roll, (2) two single tablets, coins, case containing several rolls, bag of money and a purse; (3) two heaps of coins and a purse; (4) tablet with seals, double ink-pot and pen, (5) ink pot and pen, roll of manuscript, double tablets with stylus, single tablet, (6) two manuscripts and a double tablet

painters of pottery had learnt to use it by 700 B.C., for we find it on the decorated vases of that period

Along with the alphabet, the writing equipment came also, for the first time, into Europe The Greeks received from Egypt the word *papyrus*, which has, in its English form, become *paper*. Much of their paper was delivered to them by Phoenician merchants from Byblos, a famous Phoenician city. The Greeks therefore often called papyrus *byblos*, and when they began to write books on rolls

from fibrous pulp was probably invented by the Chinese early in the second century A.D. About A.D. 760 paper prepared from linen rags was made at Samarkand. The art acquired by the Arabs during their conquests in Tartary became established in Egypt in the tenth century; it was introduced by the Moors into Spain early in the eleventh century, and brought to Europe proper by the Crusaders. It was not till the art of paper-making was established in Europe that printing became possible

Movable type had been used for several centuries in the Far East, but the first European printing press with movable type was set up by a German, Johann Gutenberg, of Mainz, about A.D. 1450

CHILDREN'S STORY

We have seen how men learned to write. Now we must think what they used for their pens and paper. You will remember that in very early times the Cave-Men painted pictures on the walls of their caves, and scratched pictures on stone and ivory. You have heard, too, how the American Indians drew pictures on pieces of bark. But stones and bark are awkward and clumsy things to use as notepaper, and soon men set about to find something better.

When the River-Men who lived in Babylon were baking the soft river mud into bricks for their houses, they found that a mark made on a soft, unbaked brick showed quite clearly after the brick was baked. They saw that a brick would be a cheap and easy thing on which to write, and that when it was baked their writing would last for a long time. The men of Babylon then began to make flat round bricks on which to write their letters and books.

Have you ever tried to write with a stick on soft mud? You will find that as you move your stick along, all the mud gets heaped up in front of the point of it, until you cannot move it at all. The men of Babylon found this out when they were trying to write on their soft clay bricks. They discovered that the best way to mark the clay clearly was to prod it,—not to scratch it.

They took short pieces of reed and cut the ends square. With these sticks they prodded the clay to make their picture writing. They held the stick upright as they prodded, but they held the brick slantways, so that only one side of the square end of the stick punched the clay. In this way they did not make marks the same shape as the end of the stick; there was left

only the mark of the two corners of one end, and the rest trailed off in a point. When you climb up a muddy bank on your toes you leave marks like this. They are the same shape as the marks of the old Babylonian writing, that is, they are wedge-shaped



When a nobleman in Babylon wanted to write to his friend, he called his secretary, who fetched a soft clay brick and sat down with it on his knee, holding it slantways, with his stick in his right hand. Then the nobleman told his secretary what he wanted to say, and the secretary wrote it down.

The nobleman sealed the letter with his own special seal. The seal was a little stone roller with pictures carved on it. The man used it as we use a toy garden roller. He rolled it over the soft clay at the end of the letter and left the marks of the pictures as he rolled. The secretary wrote the address on a soft clay envelope. The brick and the envelope were then baked in an oven. Afterwards a messenger took the letter to the nobleman's friend.

It looked like a flat gingerbread cake with rounded edges. In the British Museum you may see hundreds of these bricks which were written long, long ago by scribes in Babylon.

(Draw on the blackboard pictures of a fish, a star, and the head of an ox from the illustration on page 73.)

When men began to write by making wedge-shaped marks in clay, they altered these pictures into signs like those in the second column. After a long time, as they learned to write quicker, they altered them again to appear like those in the third column, so that they no longer have the shape of a fish, a star, or the head of an ox.

The River-Men who lived in Egypt found something better on which to write than clay bricks. They took a large river grass called papyrus and split it into thin slices. This gave them narrow strips of thin paper. To make a strip wider they stuck slices

together side by side with their edges overlapping. To make this paper thicker and stronger they stuck two pieces together back to back with the slices crossing. They now had a tough, smooth, yellow paper. (You will notice that the old word *papyrus* is nearly like our word *paper*.)

For their pen they took a smaller river grass and frayed the end of it to make a little paint-brush. Then they took some water and added gum to it with some soot from their fire. This made a black ink. Now the clever Egyptians had pens, ink and paper, very much like those we use to-day. It was much easier to write on this fine paper with pen and ink, than to write with a stick on a clumsy brick. (Draw on the blackboard the Egyptian scribe's writing apparatus which is illustrated on page 82.)

Many hundreds of years later, the people who lived in Greece copied the Egyptians' way of writing. They bought papyrus and reed pens from merchants who came in trading ships. But the Greeks did not make their pens like paint-brushes, they gave them sharp points like our own pens. With these fine points they could write much smaller than with paint-brushes.

In the picture we see a Greek boy at school. His teacher is looking over the writing he has done. The boy has written his letters with a pointed metal stick on a tablet of wax. The writing is much like writing on thickly buttered bread with a knitting needle. The pointed stick is called a *stylus*.

When the boy wished to rub out words on his wax tablet he turned his stylus upside-down and rubbed the wax smooth with the blunt end. When a boy had learnt to write well on his wax tablet he was allowed to use papyrus and pen.

TEACHING HINTS

1. Babylonian Writing.—Take a thin slab of plasticine, or clay, and with a pointed stick let a child write a word on it. Then show how much more easy it is to make

short marks by *pressing* the point of the stick into the slab. Draw a few wedge-shaped marks such as were made in the cuneiform writing. Show a common roof tile or hearth tile, on the back of which is the maker's name, or some distinctive mark. Children will readily understand that such tiles could be buried for thousands of years in a dry sandy district without deteriorating. Compare the messengers who carried the letters to the modern postmen.

2. Sealing.—To illustrate the Babylonian method of sealing a letter it will be valuable to make the model suggested in the corresponding chapter of handwork. Show, too, how a modern seal is used with sealing-wax. See, also, the blackboard sketch.

3. Words.—There are several new words in this lesson but they should be used freely as they will occur again in higher classes. Children will like to compare the words *papyrus* and *paper*; also *scribe* with *script* and *scribble*. A *tablet* is a "little table"; if a child's slate can be obtained it will be a useful aid when talking about the Greek boy's wax tablet.

4. Class Picture.—Compare the costumes of the Greek masters and boys. Note also the Greek chair. The children should be encouraged to seek for signs of progress in the arts through the ages. The illustration of the Greek boys at school in the age of Pericles is a small part of the decoration painted round the centre of a shallow bowl.

5. Alphabet.—The children will be interested in the blackboard illustration which shows the development of the Latin A from the ox head.

6. Memory Work.—(a) The River-Men of Babylon wrote their letters on soft clay bricks which were baked in the sun or in an oven. (b) With a short stick they prodded the clay and made wedge-shaped marks.

(c) The River-Men of Egypt wrote their letters with a brush on a kind of paper made from thin slices of papyrus reed. (d) Greek children at school learned to write with metal sticks on wax tablets.

7. Exercises.—(a) On what did the Cave-Men draw their pictures? (b) Letters written by the River-Men of Babylon can still be seen at the British Museum in London. Why have these letters lasted so long? (c) Tell how a boy of Babylon drew a picture of a star. (d) How did a gentleman of Babylon put his name at the end of a letter? (e) Tell how the River-Men of Egypt made their paper. (f) Why were there only few books in the days of long ago? (g) How did a Greek boy learn to write?

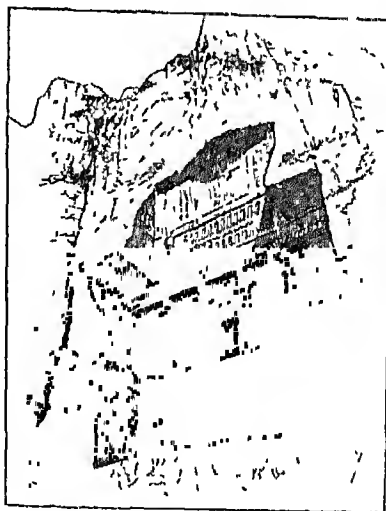
8. Sir Henry Rawlinson.—Until the middle of the nineteenth century the cuneiform script of the Babylonians and Assyrians, though well known to scholars, had not been deciphered. The honour of its interpretation belongs to Sir Henry Rawlinson, an English soldier and orientalist. The story of his work reads like a romance, of which he is the hero.

In 1844 Rawlinson was appointed political agent in Turkish Arabia, and was able to devote much time to the study of the cuneiform inscriptions in the neighbourhood. He was especially interested in a great monument carved in the face of a lofty rock near the village of Behistun. This Behistun inscription was already known to scholars. One of them, Dr Grotefend, had suspected that it referred to King Darius of Persia, and he had managed to decipher the king's name. Sir Henry Rawlinson determined to obtain a copy of the inscription if it were humanly possible.

The writing is engraved on nine great tablets 500 feet above the ground. Seven of these tablets are in a line with two more above them. Of the seven, five are carved above a narrow ledge of rock, while two

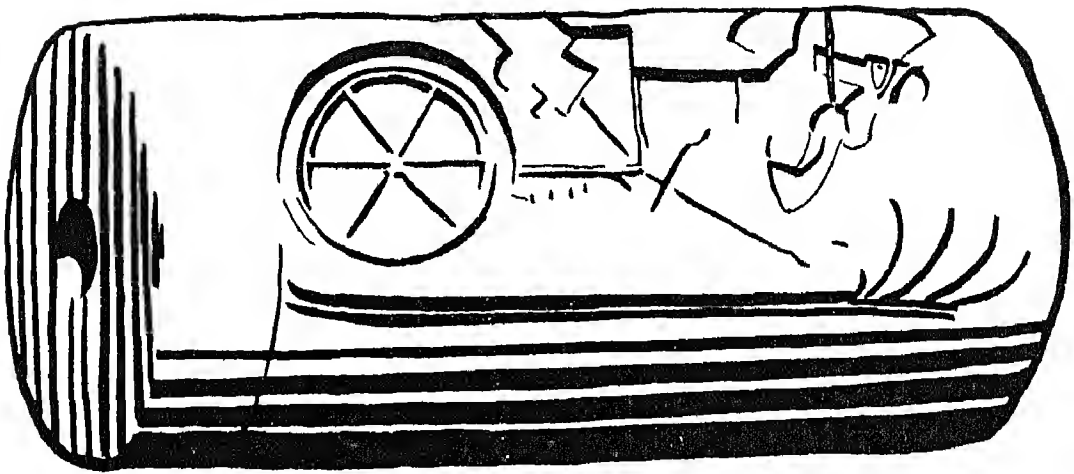
actually overhang the precipice. The only means of access to them was by lowering ladders from above. With infinite difficulty a ladder was erected, and Rawlinson was lowered to its foot. He climbed to the topmost rung, and leaning his body and left arm against the rock-face proceeded to copy the inscriptions with his right hand. In this way he obtained copies of all the upright inscriptions. In reaching the overhanging tablets he nearly lost his life, for the ladder broke, and only his iron nerve and great physical strength saved him from destruction.

At last the task was completed, and in 1849 Rawlinson returned to England with his precious manuscripts. In 1851 he published a translation of the inscription. It proved to be a history of the reign of Darius the Great written in three languages, Persian, Scythian and Babylonian. The first two were already understood, and from them Rawlinson was able to translate the cuneiform script. After thousands of years of silence the desert had at last yielded up its secret.



TOMB OF DARIUS THE GREAT
Cut in the face of a rock forty feet
above the roadway near Persepolis.

SKETCHES FOR THE BLACKBOARD



BABYLONIAN CYLINDER SEAL

DEVELOPMENT OF LETTER A FROM AN OX HEAD

XII. WINE AND OIL

PICTURE REFERENCE



GATHERING OLIVES AND DECOCTING WINE IN
ANCIENT GREECE

THE Class Picture (No II in the portfolio) is adapted from one showing a primitive method of Gathering Olives.

The picture of men decocting wine (not in the Class Picture) is taken from a Grecian marble relief. The *must* or new wine was

partly decocted into a sort of jelly, and here we see two men attending to a cauldron placed over a fire, while a third is pouring wine from an amphora into another cauldron, and a fourth is waiting to fill a jug from the same.

The picture of the men and olive trees is taken from a Grecian black-figured vase of the sixth century B.C., also in the British Museum.

INTRODUCTION

Wine.—The art of wine-making is a very ancient one. In the East it dates back almost as far as we have historical records of any kind. In Egypt and in Greece the introduction was ascribed to the gods: in Greece to Dionysus (Bacchus), in Egypt to Osiris. It is probable that the discovery that a pleasant beverage could be made from grape juice was purely accidental. The earliest example of a specific wine of which we have any record is the wine of Helbon (produced near Damascus) in which the Phoenicians traded in the time of Ezekiel (Ez xxvii. 18).

There are several passages in Homer's *Iliad* which refer to the use of wine; e.g., in the first book, where details of the sacrifice to Apollo are given, we read:

"The youths with wine the copious goblets crowned,
And, pleased, dispense the flowing bowls around."

In the seventh book we read of wine being brought from Lemnos to the Greeks besieging Troy:

"And now, the fleet arrived from Lemnos' strands,
Of fragrant wines the rich Euneus sent
A thousand measures to the royal tent."

In the eleventh book fair Hecamede prepares a mess

"A table first with azure feet she placed;
Whose ample orb a brazen charger graced,
Honey new-press'd, the sacred flour of wheat,
And wholesome garlic, crown'd the savoury treat;
Next her white hand an antique goblet brings,
A goblet sacred to the Pylian kings
From eldest times emboss'd with studs of gold,
Two feet support it, and four handles hold,
On each bright handle, bending o'er the brink,
In sculptured gold, two turtles seem to drink
A massy weight, yet heaved with ease by him,
When the brisk nectar overlooks the brim.
Temper'd in this, the nymph of form divine
Pours a large portion of the Piamnian wine;
With goats'-milk cheese a flavoursome taste bestows,
And last with flour the smiling surface strows.
This for the wounded prince the dame prepares:
The cordial beverage reverend Nestor shares:
Salubrious draughts the warriors' thirst allay,
And pleasing conference beguiles the day."

"Corn, wine and oil" are often mentioned together in the Bible as the three representative products of the soil of Palestine. In former times the sunny hills of Palestine were clothed with vineyards, and the terrace walls on the hill-sides were carefully maintained to hold up the rich soil. So common was the cultivation of the vine amongst the peasants that it became the principal type and emblem of the Israelites. Many Biblical passages referring to the vine will occur to the teacher.

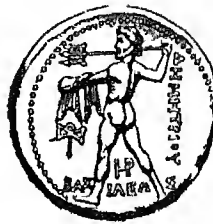
A writer (Dr Robinson) thus describes a winepress on the slope of a hill in Palestine.
"Advantage had been taken of a ledge of

rock; on the upper side, towards the south, a shallow vat had been dug out, eight feet square and fifteen inches deep, its bottom declining slightly towards the north. The thickness of rock left on the north was one foot, and two feet lower down on that side another smaller vat was excavated, four feet square by three deep. The grapes were trodden in the shallow upper vat, and the juice drawn off by a hole at the bottom (still remaining) into the lower vat." (See blackboard sketch.)

Ropes fixed to a beam overhead helped to support the men treading the grapes. Part of the new wine, or *must*, was used for drinking as soon as it was ready. Part was decocted into a sort of jelly and used as a condiment with food; part was stored. The first wine receptacles were made of skins or ludes; later, earthenware vessels were employed, but the wooden cask—not to mention the glass bottle—was not generally known until a much later period.

Olives.—The olive-tree is an evergreen. The trunk is gnarled and the foliage is of a dull grey-green colour. In general appearance the olive is not unlike the English willow. The olive thrives in rocky situations, driving its roots deep down into the crevices of rocks for moisture. At what remote period of human progress the olive was first cultivated it is impossible to conjecture. The frequent references in the Bible to the plant and its produce, its implied abundance in the land of Canaan, seem to suggest that country as the birthplace of the cultivated plant. In a primitive age the fruitful tree became a symbol of peace and goodwill, for the only matter was essential to healthy life in the dry, hot climate of the East.

In the Homeric world as depicted in the *Iliad*, olive oil is known only as a luxury of the wealthy. The warriors anoint themselves with it after a bath, and the body of Patroclus is similarly sprinkled, but no mention of the cultivation of the plant is made. It was probably first cultivated on the Hellenic peninsula, or the limestone hills of Attica.



POSEIDON

*Silver coin of Macedonia
In the British Museum*

Poseidon, the god of the sea, is fighting with his trident. Round his left arm he has wrapped his chlamys, or net, to serve as a shield.

When Poseidon and Athena contended for the future city, an olive sprang from the barren rock at the bidding of the goddess. She became the patroness of those arts that were to bring undying influence to the rising State. The sacred tree of the goddess long stood on the Acropolis, and,

though destroyed in the Persian invasion, it sprouted again from the roots.

In the Olympic games the victor was crowned with a spray of the olive, and the Roman conqueror at an ovation was similarly crowned. Among the Greeks the oil was valued as an important article of diet as well as for external use. The Romans employed it largely in food and cooking. In the luxurious days of the later empire it became a favourite axiom that long and pleasant life depended on "wine within and oil without."

CHILDREN'S STORY

Have you ever seen a wild strawberry? It is good fun to walk along a country lane hunting for these sweet fruits. How very tiny they are! No larger than your fingernail! The strawberries grown in our gardens and fields are very much larger. That is because men have for years and years taken care of the plants and helped them to grow larger and larger fruits.

We know that long, long ago Man took great care of wild wheat and wild barley until the seeds became finer and he could make good bread from them. In some of the warm lands where early Man lived he found the wild vine growing. He liked the juice of the grapes which grew on it, so he planted some vines near his home and took care of them. Each year the grapes were larger and the juice was sweeter. Even

when the sun was very hot, and only a few plants could keep alive, his grape vine flourished

He found that the juice squeezed out from the grapes would keep for a long time; so each year, when the fruit was ripe, he gathered all he could. He pulled off the stalks and tossed the grapes into a large hollow vat that he had dug in a rock. Then he trod the juice out. Tramp, tramp, up and down on the grapes he went till all the juice was squeezed out. He made a hole at the bottom of his vat, and he let the juice run out of the hole into bottles. They were not clay bottles, or glass bottles, for Man had not yet found out how to make these. They were skin bottles. Man had been making skin bottles for a long, long time. To make a bottle he took the skin off a goat that he had killed for food, sewed up the holes of the legs and left the neck part for the mouth of his skin bottle.

Skin bottles last a very long time, for they can be carried on the backs of men or animals without being broken. In many parts of the world skin bottles are still used. Travellers in the hot lands of the East always carry their water in skins. In towns, too, where water is scarce, water sellers carry skin bottles on their backs through the streets and sell water to anyone who is thirsty.

In the British Museum may be seen many carvings in stone and marble of the vine and grapes, and of wine-making. One clever picture carved in marble more than 2,500 years ago, shows how the Greeks sometimes heated wine to make wine-jelly, which was very nice to eat when spread on bread. One man is shown lifting the lid of an iron pot, as it boils over a fire, to see how the wine is getting on, and another beside him is just going to make the fire burn hotter by pushing a log into it. In another part of the carving a man is pouring wine from a jar into a very large earthenware pot, and another is standing by waiting to fill

a jug from the wine in the pot. For hundreds of years men in Greece have grown the vine, and the currants you have in your own cake to-day most likely come from Greece. Currants, you know, are small, dried grapes.

Besides the grape, the Greeks and other people of the East found another fruit which was very useful to them. That was the olive. The olive is like a small plum. It grows on a tree which will thrive in a warm land on rocky soil. In this old Greek picture which was painted on a vase you will see the olive gatherers. A boy has climbed up into the tree, and he and some men are knocking off the olives with sticks. Others below are gathering them up.

When ripe olives are pressed between heavy stones a rich oil is squeezed out. This oil is used for food much as we use butter, and people of the East would find it very hard to live without olive oil. You will often read in your Bible something about wine and oil, so you can be sure that grapes and olives were very important to the people who lived in Canaan.

No one knows how the olive tree found its way to Greece, but the Greeks themselves tell a pretty story about it. This is the story: Zeus, the great god of the Greeks, said that the chief city of the land should be given to the god who gave the most useful gift to the people. One god gave them the horse, but the goddess Athena, the daughter of Zeus, gave them something more useful. She spoke to the rocks and there sprang up an olive tree. Zeus declared



GREEK RUNNERS

that the best gift had come from Athena, so the city was called after her name, Athens.

This goddess was supposed to be very good to her people. She taught them to live at peace together, she looked after the women and girls who did the spinning and weaving, she cared for the men who grew the corn and minded the sheep and goats. When men gathered the olives they thought of their kind goddess, and when the young men ran the great foot-races the winner was crowned with a spray of olive leaves. How proud he must have been to wear a gift which the goddess Athena had given to the people!

TEACHING HINTS

1. Fruits.—Explain that when wild fruits are cultivated they become larger and better. Country children will know the crab-apple and will appreciate the difference between it and the cultivated variety. Compare, too, the sloe with the cultivated plum, the wild barley with the cultivated variety, etc. Note that both the vine and olive have long roots which go deeply into the soil, enabling the plants to live in warm lands where little rain falls. Plenty of sun is needed to ripen these fruits. The vine in England comes to perfection only in glasshouses, the olive does not thrive at all in this country.

2. Wine-press.—An illustration of a primitive wine-press is shown in the sketch. In many places where the vine is cultivated the juice of the grapes is still pressed out by treading.

3. Skin Bottle.—An illustration of a skin bottle is shown for the blackboard sketch. The bottles are prepared by the tanner, who

first fills the skin with chips of oak wood and soaks it in a strong infusion of oak-bark. Skin bottles are often mentioned in the Bible, e.g., when Hagar was driven forth into the wilderness with Ishmael, "Abraham rose up early in the morning, and took bread, and a bottle of water, and gave it unto Hagar" (Gen. xxi, 14). Milk was carried in skin bottles. When Jael asked Sisera for water she opened a bottle of milk and gave him drink (Judges iv., 19). Note, too, the passage concerning putting new wine into old bottles (Matt. ix., 17).

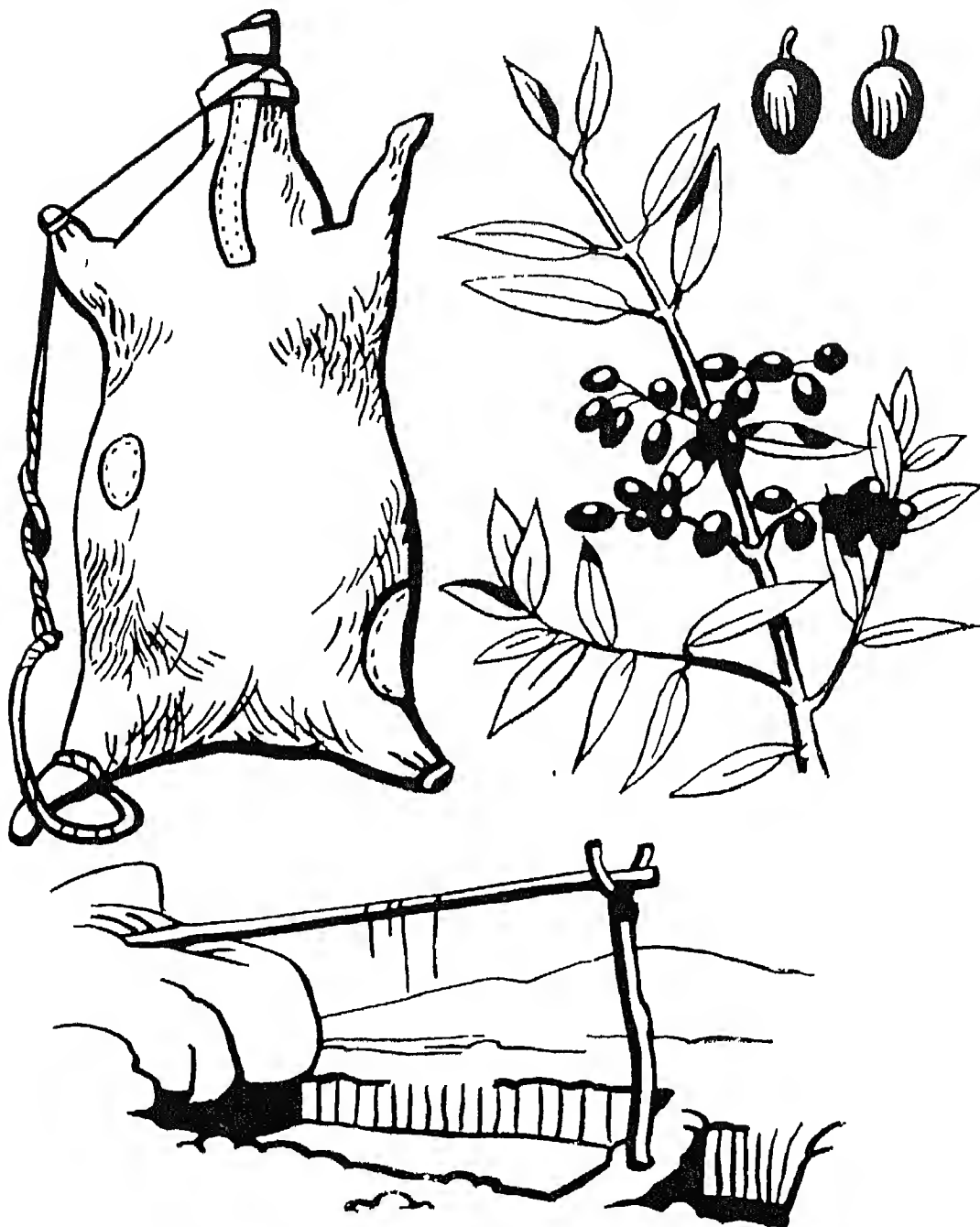
4. Olive-press.—This consisted of two upright posts of stone joined at the top by a stone lintel. A heavy beam moved between deep grooves to force down a heavy wooden lid on to the fruit in the stone vat. Wedges of stone and wood were used to increase the pressure. The oil flowed over the vat by a hollow lip into jars placed to receive it.

Children will remember how the dove carried an olive leaf to Noah. (A symbol of peace.)

5. Memory Work.—(a) In very early times Man planted the vine and the olive tree. (b) From the grapes of the vine he made wine, and from the olives he squeezed out oil for food. (c) He made bottles from the skins of goats. (d) A winner in the Greek races was crowned with a spray of olive leaves.

6. Exercises.—(a) Where would you go in England to see pictures carved by Greeks of long ago? (b) Tell of one carved picture you would see there. (c) How did men first make bottles? (d) How can you tell from the picture of the olive gatherers who are men and who are boys? (e) How is the city of Athens said to have got its name? (f) Why did the Greeks highly prize the olive?

SKETCHES FOR THE BLACKBOARD



SKIN BOTTLE

OLIVE BRANCH AND OLIVES

WINE-PRESS

XIII. HORSES AND CHARIOTS

PICTURE REFERENCE



TIGLATH-PILESER III, KING OF ASSYRIA, IN HIS CHARIOT

THE illustration (it is not in the portfolio) is taken from a bas-relief on the walls of the king's palace discovered at Nimrūd, and is now in the British Museum. The Assyrian kings of the period were noted warriors and lion hunters (Use the Class Picture, No 20, to illustrate this lesson. It shows an Assyrian King Hunting Lions.)

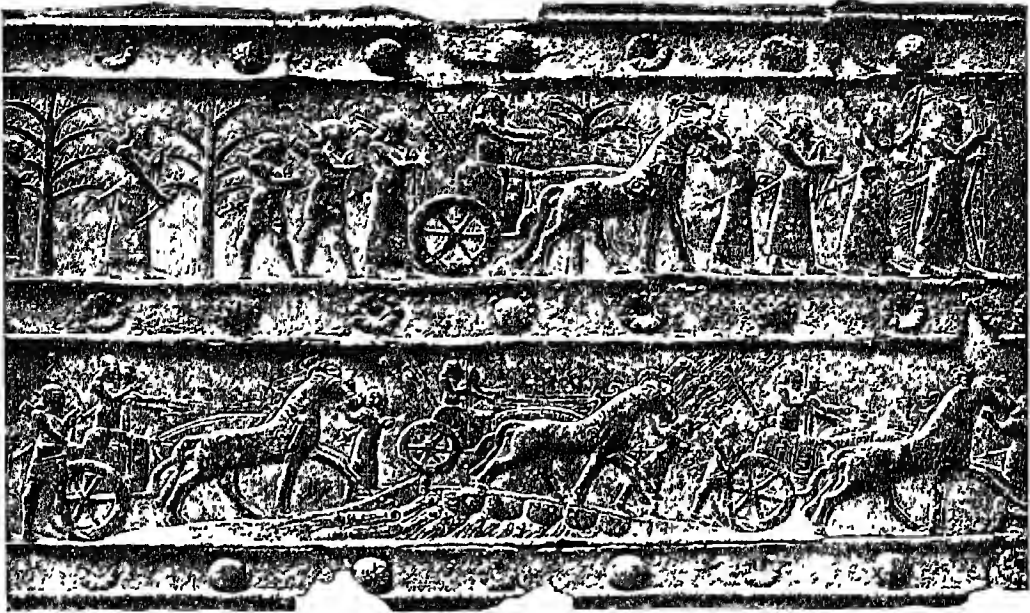
INTRODUCTION

The main object of this lesson is to teach the children something about the discovery of metals. The introduction of metal marks one of the most important steps in human progress. Apart from the discovery of fire-making, there has been no such advance in man's material condition until the development of steam and electricity in recent years.

It is a matter for conjecture how metals first became known to man. Probably, gold was the first metal to be discovered and worked, but it had little practical value to early man, as it was too soft a metal with which to make tools and weapons. Countless skilfully worked trinkets belonging to the Neolithic Age have, however, been found. Copper was almost certainly discovered accidentally, and probably in the Near East about 4500 B.C. This metal was found to be far superior to stone or wood for making domestic utensils, tools and weapons. Before long, the new discovery was made that a small proportion of tin mixed with copper made an alloy (bronze), which, owing to its superior hardness, was more serviceable than copper. Bronze quickly superseded copper, and by the year 3000 B.C. it was in general use in the Near East. The Egyptians

quarried and carved their stone and built the pyramids with bronze tools. With bronze saws, axes, chisels and other tools the worker was able to prepare wood for countless purposes, not only for the building of houses and temples and palaces, but for wagons, chariots and ships. Labour

it is believed that most races passed at one time or another Stone and bronze, bronze and iron, and even stone and iron implements have been found together in sepulchral mounds, a fact that suggests that the three stages of man's progress overlapped in many countries



PORTION OF ONE OF THE BRONZE BANDS FROM THE GATES OF SHALMANESER III.
KING OF ASSYRIA

From Assyrian Saloon, British Museum

This illustration represents the army on the march. On the right of the upper register is a figure of the king, in the lower register is a representation of chariots crossing a river by a bridge of boats.

in the fields was rendered easier and more efficient when the cultivator was provided with bronze spades, hoes and ploughshares.

The name "Bronze Age" is given by archaeologists to that stage of human culture, intermediate between the Stone and Iron Ages, when weapons, utensils and tools were, as a general rule, made of bronze. The term has no absolute chronological value, but marks a period of civilisation through which

The remains of the lake-dwellings of Switzerland show how central Europe was once inhabited by tribes using stone implements, how at a later period bronze hatchets and spears prevailed, and lastly iron came in.

In Homer's *Iliad* we read of the god Hephaistos (the Roman Vulcan), the famed worker in metals who fashioned a wonderful shield for Achilles.

" Thus having said, the father of the fires
 To the black labours of his forge retires.
 Soon as he bade them blow, the bellows
 turn'd
 Their iron mouths, and where the furnace
 burn'd,
 Resounding breathed at once the blast
 expires,
 And twenty forges catch at once the fires;
 Just as the god directs, now loud, now
 low,
 They raise a tempest, or they gently blow;
 In hissing flames huge silver bars are roll'd,
 And stubborn brass, and tin, and solid
 gold,
 Before, deep fix'd, the eternal anvils stand;
 The ponderous hammer loads his better
 hand,
 His left with tongs turns the vex'd metal
 round,
 And thick, strong strokes, the doubling
 vaults resound.
 Then first he form'd the immense and
 solid shield;
 Rich various artifice emblazed the field;
 Its utmost verge a threefold circle bound;
 A silver chain suspends the massy round;
 Five ample plates the broad expanse com-
 pose,
 And godlike labours on the surface rose."

Iron seems to have been known in Egypt
 by the beginning of the Bronze Age, but this
 iron came from meteorites, which, of course,
 were rare. The earliest known name for
 iron, "the metal of heaven," suggests this
 source. Iron-mines were first worked by
 the Hittites, who found abundant supplies
 to the north of their land in the vicinity of
 the Black Sea. By 1300 B.C. iron was
 rapidly taking the place of bronze in Egypt.
 It would seem that in Homeric times the
 smiths knew of iron, from the passage in the
Odyssey which describes the hissing of the
 axe as the smith dips it into the cold water
 to temper the iron.

" And as when armourers temper in the
 ford
 The keen-edged pole-axe, or the shining
 sword,
 The red-hot metal hisses in the lake."

Equipped with iron chariots and iron
 weapons the Assyrians under Sargon and
 Sennacherib (722-681 B.C.) devastated the
 lands of their neighbours, thus introducing
 to the world a new age of frightfulness in
 warfare.

The general use of iron spread slowly
 westwards over Europe, though it was not
 known in Ireland until the end of the first
 century of the Christian era.

CHILDREN'S STORY

How do you like this picture? (No. 20).
 The man who is holding up his hand was
 a famous king of long ago. He is standing
 up in a curious sort of cart called a chariot.
 This king was not only a fighter but also a
 noted lion hunter, and in his chariot he went
 forth to battle or to hunt.

Behind the king stands a servant holding
 an umbrella. If you look carefully at the
 picture you will see a quiver of arrows
 hanging on the chariot. These arrows are
 not tipped with stone, but with metal.
 Some of the horses' trappings, too, are
 made of metal, as well as much of the
 chariot. This hunting king lived 3,000 years
 ago, but by that time Man had found out
 how to melt gold, copper, tin, and iron
 from the hard rocks.

How Man found this out no one can tell.
 I daresay you have put a piece of lead in
 the fire and watched it melt and run out in
 a silvery stream under the fire grate. Perhaps
 one day, very long ago, Man found some
 shiny bits of copper in the ashes of his fire.
 He liked the look of them, and found that
 he could beat the copper with his stone
 hammer into pretty shapes. Very likely he
 gave these first pieces to his wife or his
 children. In time he found out how to melt
 copper from certain rocks and mix it with
 tin to make it hard.

Take a penny in your fingers and feel
 how hard it is. A penny is made of bronze,
 which is a mixture of copper and tin. When
 men knew how to make bronze they used
 it to make their pots and pans, which would

not easily break. They put plates of bronze on their ploughshares so that the oxen could draw them more easily through the fields. They made bronze spades and hoes; bronze spears, swords and arrows; bronze helmets for their heads and guards for their legs, arms and bodies.

Man was becoming very well off indeed when he found out how to melt and forge metal. He made beautiful rings, bracelets and brooches, not only in bronze but also in gold and silver. If you go to a museum, there you will see bronze pots and pans, tools and weapons, which were made by Man three, four, five thousand years ago.

In some lands men found out how to melt iron. Iron is stronger and harder than bronze. With iron the carpenters could make the very best tools. Saws that would cut wood and stone, sharp drills to make holes, chisels to cut with, axes to hew with, and many more besides. Look round the room in which you are sitting and count the number of things in it that are made of iron.

It is sad to know that almost the first thing men did with iron was to make sharp swords, spears, axes and arrows with which to kill other men in battle. The king in the picture was a fierce fighter. He had hundreds of iron chariots drawn by swift horses, and he used them to fight against other people whose lands he wanted for himself.

Do you know that, although we have come nearly to the end of our stories, we have never yet spoken about a tame horse? We have spoken about oxen, sheep and goats many times, and we have spoken of the *wild* horses which the Cave-Men hunted for food, but this is the first time that we have spoken of the tame horse.

The reason for this is that Man did not tame the horse so soon as he tamed the other animals. The first people to use tame horses lived on the grasslands of the Far East, and these people used them for riding from place to place and for war. About the time that men in the Near East were making iron things, they, too, had tame

horses which they used like the king in the picture for drawing the chariot or for riding. It was the horsemen who first wore trousers. Can you guess why? Up till that time men's clothes had been much like women's, with long robes reaching from the neck to the feet. The horsemen found they could ride more comfortably if they slit the bottom of the robe and tied each piece round a leg. In this way they learned to make trousers.

We often read about horses and chariots in the Bible. Do you remember how the Egyptian soldiers with their horses and chariots were drowned in the Red Sea, when they tried to prevent the Israelites from leaving the country? There are many old pictures painted or carved on walls in Egypt which show kings driving in their chariots. The Greeks used then horses and chariots mostly for racing, and later we shall read in other books of a famous people called the Romans who were very fond of having chariot-races.

A chariot-race was a very exciting game. It took place in a long, narrow field called a *Circus*, which was surrounded by seats and buildings, like a modern football field. Down the middle of the field ran a low wall called the *backbone*, and at each end of the backbone stood three tall cones, or steeples, that shone like gold. The drivers had to race their chariots seven times round the wall, making a sharp turn each time round the cones.

Four chariots took part in a race, and each was painted in a different colour—red, white, green or blue. To each chariot four horses were harnessed and the drivers wore close-fitting caps and shirts of the same colour as their chariots. Each driver wrapped the ends of the horses' reins round his body, and in his belt he carried a sharp knife with which he could quickly cut the reins in the case of an accident. Let us suppose we are living in ancient times and are going to a chariot-race.

On feast days and holidays thousands of people, rich and poor alike, flock to

the Circus to see the chariot-races. There is crowding and pushing, shouting and fighting, as the people rush to find seats. On one side in the middle sits the emperor in his purple robe, round about him sit hundreds of noblemen in their long white robes edged with purple. Ladies in all sorts of pretty dresses talk happily together as they wait for the chariots to appear. For many days everybody has been talking about the races, some quite sure that Green will win, and others equally sure that Red is the better.

The blare of trumpets is heard and the people stand up excitedly in their seats waving hands, fluttering handkerchiefs and shouting out the names of the drivers. From under an archway the chariots enter the Circus, and after pacing round for all to see, each one goes into a separate stall at one end of the field, and a barrier shuts it in.

Now every voice is hushed. All eyes watch the president as he stands up with a large white flag in his hand. He drops it. The barriers are pulled back and out thunder the chariots, madly racing to be the first to turn round the cones.

Red wins! Well turned! Well done, Green! So the excited onlookers shout as the chariots thunder past. Four times! five times! six times! and now for the last time two chariots race almost side by side. A tremendous roar

goes up. Red is winning! Red is winning! And amid clapping of hands, yells, laughter and a great noise of voices Red wins the race. Twenty or more races take place, and at the end the winners receive the palm-branch, gold, silver, clothes and many other presents. For days and days the people of Rome will talk of nothing else but the chariot-races in the Circus.

(For an illustration of the Chariot-Race see the Class Picture, No. 28 in the portfolio.)

TEACHING HINTS

1. Chariot.—The Greek chariot had two wheels, and was made to be drawn by two horses. Immediately on the axle, without springs of any kind, rested the body of the chariot, which consisted of a floor to stand on and a semi-circular guard round the front about half the height of the driver. It was entirely open at the back, so that the combatant might readily leap to the ground.



BATTLE OF GODS AND GIANTS

From a red figured Vase about 400 B.C.

Zeus, in his chariot, is driven by the goddess of Victory. He hurls a thunderbolt. Athena with crested helmet, shield and spear thrusts at a giant below. Artemis (on the right) discharges her bow. Hercules, a demi god, is on the lower level, he is about to despatch a giant with his club. The giant in the middle has been struck by a thunderbolt.

and up again as was necessary. There was no seat, and generally only room enough for the combatant and his charioteer to stand in. The pole was probably attached to the middle of the axle. The wheels and body of the chariot were usually of wood, strengthened in places with bronze or iron; the wheels had from four to eight spokes and tyres of bronze or iron. This description applies generally to the chariots of all nations of antiquity.

At a later period, in both Greece and Rome, chariots, especially those used by royal personages or in the races, were drawn by four horses.

A simple model of a chariot can be made from a small cardboard box. Remove the lid and one end of the box, and shape the two long sides with a pair of scissors. With two small laths of wood (flower sticks will serve) glue on an axle and pole, and attach two cardboard wheels. A model for the children to make is given in the corresponding chapter on handwork.

2. Metals.—Most children will have seen a piece of lead melted in a fire, or they will have seen a plumber melting it. A small piece can be melted in a metal box lid or an old spoon over a bunsen burner or a spirit lamp, or, of course, in a fire. If a cooking centre is attached to the school a copper pan can be borrowed for exhibition. Probably some child will bring from home a small ornament of beaten copper. It will be instructive for the children to compare the relative hardness of copper and iron nails. Attempt to drive one of each kind into a brick and note the result. The children should clearly understand how much more useful a bronze axe could be than a stone one; they should realise, too, what an immense amount of time was needed to make a good stone axe, while a bronze one could be moulded comparatively quickly.

3. Horse.—Children should clearly understand that in many countries oxen are still

used for drawing the plough or for other purposes. In England the horse has superseded the ox, and the *iron* motor has largely taken the place of the horse. In war the *iron* tank has almost completely displaced cavalry.

4. Near East. Point out on a map of the world the Near East and the Far East. It will probably confuse young children to mention the names of the countries where iron was first worked, or where the horse was first generally used. See that the children can readily point to the East where the sun rises, and to the West where it sets. They should by this time clearly understand that early civilisation took place in the Near East.

5. Memory Work.—(a) When men found out how to work bronze they used it for making their pots and pans, tools and weapons. (b) As time went on men worked in iron, which makes stronger and harder tools and weapons than bronze. (c) Men of the Far East tamed wild horses and used them for riding. (d) In Egypt, Greece and other lands men used horses and metal chariots for hunting, for war, or for racing.

6. Exercises.—(a) Tell all you can about the picture (No. 20 in the portfolio). (b) Why were men better off when they found out how to work bronze? (c) Which do you think was the better tool for cutting down a tree, a stone axe or a bronze axe? Why? (d) Name some things which you know are made of copper or bronze. (e) Make a list of twelve things which are made of iron. (f) If you have seen a man cutting grass or a hedge with a sickle, tell how he sharpens the blade. Could he sharpen a sickle which had flint stones for a cutting edge? (g) If you have seen a chariot-race at the cinema, tell all about it. (h) Why did men who lived on the great grasslands of the Far East wear trousers?

HANDWORK FOR THE HISTORY LESSONS

THE purpose of the following pages is to help teachers in the planning of illustrative exercises connected with the history lessons set out in the first section of this volume. We have endeavoured especially to aid the teacher who knows but little of handwork methods for illustrating the various subjects of the curriculum, and, for this reason, many of the directions may seem to err on the side of simplicity. It should be remembered, however, that the exercises in this volume are intended for children of seven years of age, and hence the necessity for including models of simple construction. Teachers will find these exercises helpful in giving a vivifying effect to their oral lessons.

In the *Handbook of Suggestions for Teachers* issued by the Board, now the Ministry, of Education it is pointed out that part of the work may conveniently consist of "the expression of ideas derived from lessons, and the representation of objects from memory or imagination" In handwork of this type "the child attempts to represent in an object, ideas which are dominant in his mind as a result of some lesson or story or some experience he has undergone For this purpose plastic materials are usually employed, since they are more readily

manipulated and permanence is not required in the result. Work of this kind sometimes reaches a high degree of excellence in the junior classes of elementary schools, but teachers are often content with too low a standard of accuracy. Children of this age can without undue strain reproduce faithfully in clay or other suitable plastic material all the details of a fruit or a spray of leaves or a simply fashioned object. The teacher should always try to lead the child to improve on a first attempt.

In many schools this type of handwork includes the making of models to illustrate lessons in history and geography, e.g., a Norman castle in cardboard, or a relief map in pulp of some kind "

The work indicated in the ensuing pages has been developed in the spirit of the Board's suggestions. The media selected for the construction of models is such as is usually available in the average school—paper, cardboard, clay or plasticine, kindergarten sticks, and the like. Where, however, opportunities have arisen for the use of scrap material, such as old boxes, twigs from trees, corks, cotton reels, etc., these have been utilised in the construction of the models.

The list of objects illustrated in these lessons is set out in the Contents on page xii.

I. STICKS AND STONES

This chapter of the history section gives a review of the general conditions under which primitive Man lived. Handwork exercises based on the activities of ancient man are pursued with zest by young children.

The first model is that of a sharpened flint tool. Each child should be provided with a ball of clay. Rolling this between the palms of the hands, he will produce a shape something like a carrot. This is slightly flattened on the board to form the starting-point for the model. With the blade of the modelling tool, small slices of clay are removed, so giving a roughened surface with large facets as in Fig. 1. To complete the model, the work with the tool is concentrated upon the edges. One or two of the best models can be saved and dried. When dry, take a palette containing paint of the following three colours,—a rather thick dark brown, dark blue and dark green. Paint these colours on to the model allowing the tints to merge freely one into the other. The result will be a realistic model of a flint tool, such as may be used by the teacher for demonstration in later lessons.

Man's early discovery of the use of fire as a servant is another important matter dealt with in this lesson. A simple illustrative model may be constructed in the

following manner. Six or eight rolls of clay are placed on the modelling board to form a rectangular shape, and these are smoothed over with fingers and thumb to form a rectangular block as in Fig. 2 A. Next, an ordinary wooden meat skewer is taken, and the point is inserted into the centre of the block of wet clay. If now the stick be inclined a little and rotated carefully between the palms of the hands a conical depression will be made in the block. The block must be dried off until hard, and then painted a dark brown colour. The children can now demonstrate how fire was produced by friction (Fig. 2 B).

Young children are always most interested in animals. In this lesson they have talked of mammoths. The next project is a paper model of this animal. The mammoth has been simply sketched on generous lines (Fig. 3) so that the teacher may trace it directly from the plate, going over it with hectograph ink and providing sufficient copies for the class. The model might be coloured a brownish grey, preferably with paint. The base should be tinted brown and green, and the tusks yellow. One of the flaps at the base is turned up horizontally to the front, the other to the back. The flaps should be stuck with adhesive to a small sheet of cardboard.

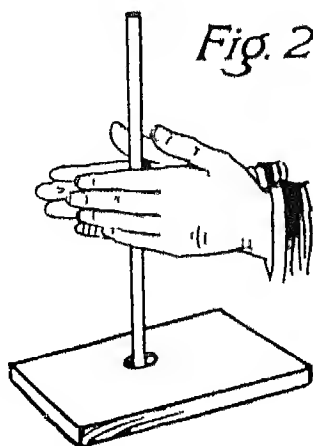


Fig. 2. B.

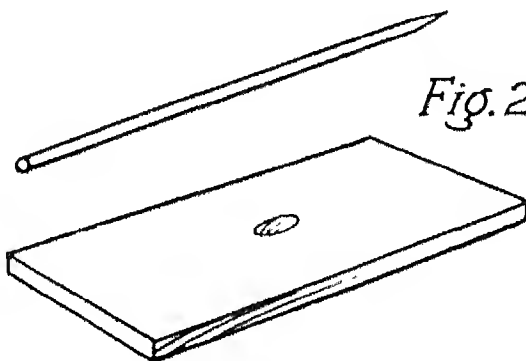


Fig. 2. A.

STICKS
AND
STONES.



Fig. 1.

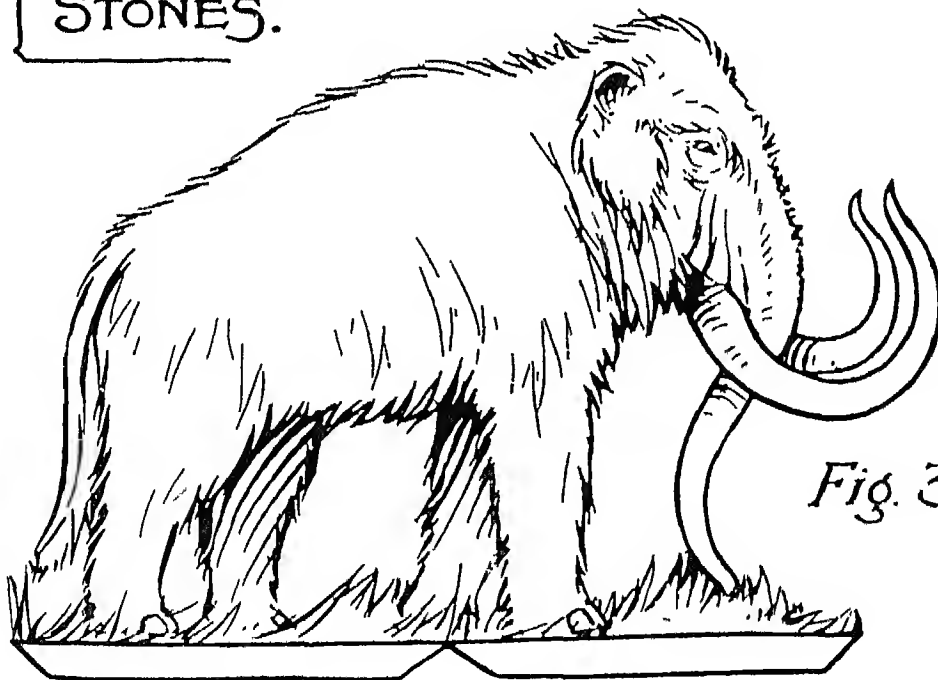


Fig. 3.

FIG 1 PLASTIC MODEL OF A FLINT TOOL
FIG 2 HOW FIRE WAS PRODUCED BY FRICTION
FIG. 3 PAPER-CUTTING EXERCISE—THE MAMMOTH

II. MAN'S BEST FRIEND

Our first illustrative model shows a primitive fire such as that by which early Man might have cooked his food. It is a simply constructed model, quite suitable for young children to make, and it looks well when finished (Fig. 1). The first stage is to smooth a mass of clay, or plasticine, on to the modelling-board, this will form a foundation upon which to build. Next, a forked twig is thrust into the clay base slightly towards one end of it. A long twig is rested obliquely across the fork. To take the place of small boulders, irregularly shaped lumps of clay are packed upon the end of the twig, which will now be firmly held in position. A small "joint" of meat is modelled, to this a short piece of cotton with a loop is fixed, and the end of the cotton is tied to the stick as shown. The children will now be able to show their ingenuity in making a fire beneath. For this, a few charred match ends, a little ash, tiny bits of brilliant red paper or wool will all be found useful. For the ascending smoke, white cotton-wool may be fixed into the heap. To finish off the model the clay base may be sprinkled with fine soil, one or two small stones being added here and there.

The children have been considering primitive Man's hunting implements and how he utilised sticks and stones, fashioning them into rude, yet effective weapons. The further exercises shown in the Plate offer some suggestions for handwork connected with this particular aspect of early history. The first model is that of a stone axe. First

of all, the handle, or haft, is made from a thick roll of clay as in Fig. 2 A. One end is slightly flattened out, and with the point of the modelling tool a round hole is worked in it. More clay is added to the other end to form a weighty handle. The next step is to form the axe-head from a rounded carrot-shaped mass of clay—so made that it will fit the hole in the haft (Fig. 2 B). This is a useful piece of hand and eye training. The wide end of the axe-head is smoothed between fingers and thumb to form an edge. To complete the model the axe-head is thrust through the hole in the shaft, but this is best done when the clay has hardened. Two tiny wedges of wood inserted when the head is fixed will help to make it more secure (Fig. 2 C). There is danger of the brittle clay handle breaking when dry, and for this reason a thin splint of a kindergarten stick should be thrust into the handle when it is damp. The dotted line shows the position of this stick.

The next exercise shows the making of a primitive spear. A narrow spear-head is made of clay in the same way as the flint tool was made in the first lesson. Next a cleft stick is cut by the teacher (Fig. 3 A). The head is fixed into position and is bound securely with raffia, preferably dark brown to represent leather. The teacher's demonstration model might be bound with a leather thong.

The last model, a bow and arrow, is a very simple one made from a pliable twig and a piece of thread (Fig. 4).

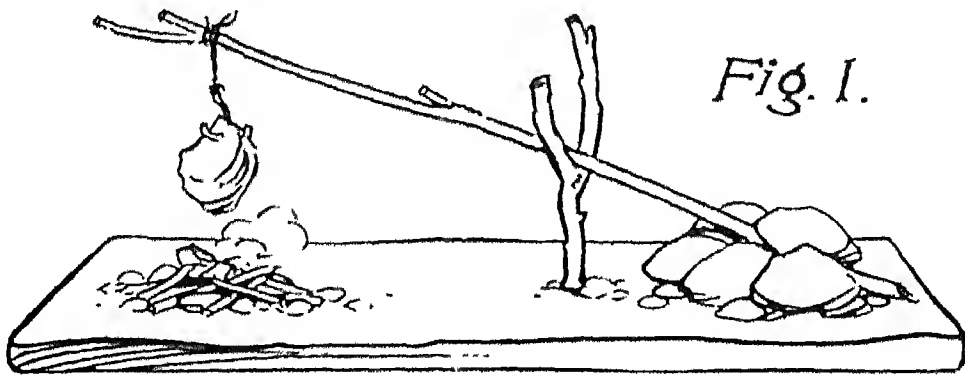


Fig. 1.

MAN'S
BEST
FRIEND.

Fig. 2.C.

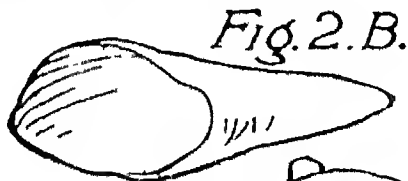


Fig. 2.B.



Fig. 3.A.



Fig. 3.B.



Fig. 2.A.

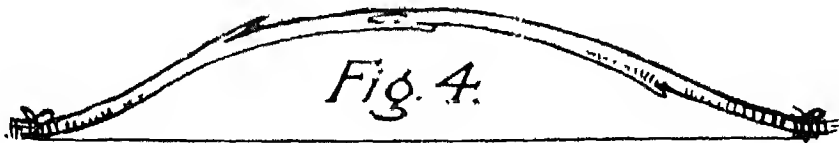
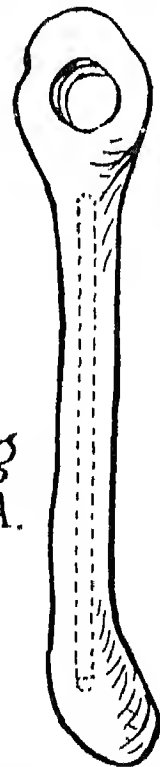


Fig. 4.

- FIG. 1 PRIMITIVE COOKING—CLAY AND TWIGS
FIG. 2 CLAY MODEL OF A STONE AXE
FIG. 3 MODEL OF A PRIMITIVE SPEAR-HEAD—CLAY AND TWIG
FIG. 4. BOW AND ARROW MADE FROM A TWIG AND A PIECE OF THREAD

III. THE CLEVER RIVER-MEN

This lesson describes how primitive Man used his growing intelligence to fashion simple implements for the cultivation of the soil. We see how a wooden hoe (which was simply a stout hooked crook cut from a neighbouring tree) made tillage possible. Later, when this hoe was modified and harnessed to a tame ox, it became a plough. The Egyptian wall paintings give us details of such implements used by the clever River-Men.

A primitive hoe makes a simple model for young children. A piece of cardboard is cut as shown in Fig. 2 A. One arm is cut fairly straight, and a little longer than the other, which latter is left rather rugged and provided with a working point. (The teacher should demonstrate with a large model, cut on generous lines in strawboard; the children's exercises may be on a smaller scale and cut from thinner cardboard, or stout paper.) The children will be led to see that the strengthening of such a stick would, for heavy working, be not only desirable but necessary. To provide such a strengthening bar, two small holes are made and an oblique strip of card is fixed with small paper-fasteners across the angle, as shown in Fig. 2 B. The completed model should be tinted in washes of green and brown to represent wood.

Our next model, and one which the children will revel in making, is an Egyptian ploughing project. Although one cannot expect them to be expert draughtsmen in animal-drawing, they will find the rest of the project tolerably simple work. Fig. 1 A shows the tame bullock drawn on a large

scale so that the teacher may trace it directly from the Plate, and make copies for the children. The basal flaps should be turned alternately to the front and back so that the animal will stand in an upright position. Next (Fig. 1 B), a long narrow strip of paper, or thin card, is folded, and the shape shown is cut on the fold so that it is made double, and long enough to reach from the bullock's neck in an oblique manner to the ground as in Fig. 1 F. Tiny holes are made through it in the positions indicated. The next business is to plan for the coulter, or "cutter" of the plough. Again a folded sheet of thin card, or stout paper, is taken, and this is cut with the scissors so that the point comes on the actual fold as in Fig. 1 C. The coulter is fixed with a paper-fastener in the fold of the previously cut strip, and another paper-fastener is inserted through the second pair of holes. The double handles are opened out a little as shown in Fig. 1 D. Arrangements must now be made to provide a collar to harness the shafts of the plough to the bullock's neck. This is done with two folded strips of paper, held by a paper-fastener at back and front (Fig. 1 E). In assembling the model (after the plough has been painted brown and the bullock red, brown or cream) the first step is to stick the animal, by means of the flaps, to a cardboard box lid. If wished, a slit may be cut in the lid, and the flaps inserted through the slits and bent round on the under side. The harness is slipped carefully over the animal's head, and, to give a finish to the group, the base is sprinkled with soil.

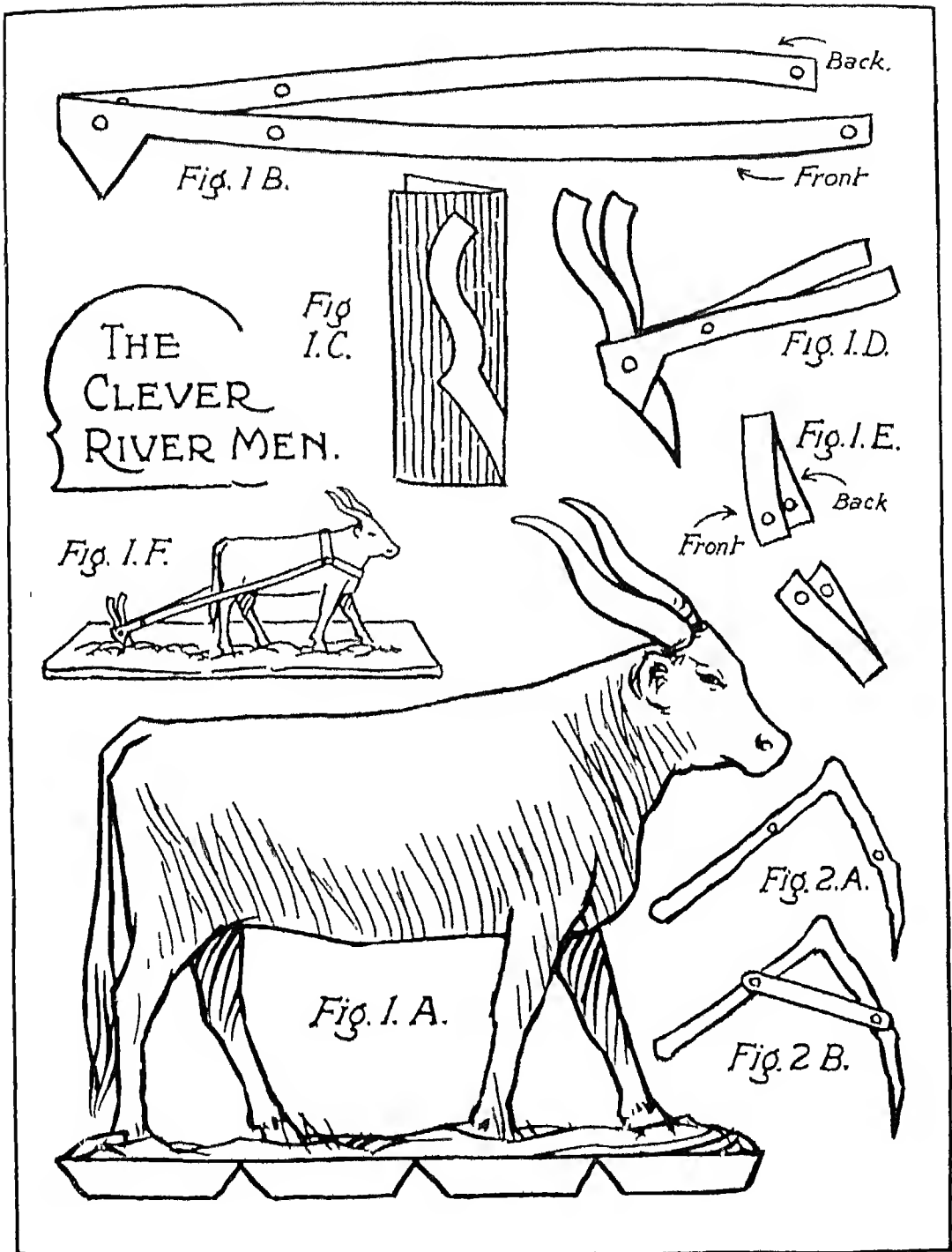


FIG 1 AN EGYPTIAN PLOUGHING PROJECT TO BE WORKED IN THIN CARD
 FIG 2 CARDBOARD MODEL OF AN EGYPTIAN HOE

IV. THE LAND OF NO RAIN

This lesson deals with the dry lands of northern Africa, where the question of irrigation is one of paramount importance. Most children have gardens at home, and they will naturally be interested in seeing how man succeeded in constructing a primitive mechanical appliance to aid him in providing water for his crops. When they have themselves made a model of a *shadoof* and played with it, they will have a much clearer conception of its working than from verbal or pictorial illustrations.

We have based our handwork on the making of a working-model of a Nile *shadoof*, and have described one suitable for the teacher's demonstration, and the other for the children's use. The teacher's model will be made on a large scale, preferably in the sand tray, then, if plasticine be used, water, coloured bluish green with water-colour, may be poured around its base (Fig. 1 A). The first step is to model a mass of clay or plasticine to the shape of the bank of a river as shown in the sketch. No particular care need be taken: the rougher it is, the better will be the final effect. When the desired shape has been attained, two irrigation troughs are scooped out with the modelling tool or an old knife. In making these, see that the one leading from the extreme edge of the river bank slopes a little down-hill, to ensure that the water shall run down this channel. A long twig is taken, and to one end of this a mass of

clay, to form a counterpoise, is fixed with strands of raffia (Fig. 1 B). A little clay bucket is fixed with thread at the other end. Now, a forked twig (Fig. 1 C) is taken, and by means of a pin, which acts as a pivot, the long twig is fixed as shown so that it will swing freely up and down. The assembled *shadoof* is carefully taken, and the end of the forked twig is thrust right into the clay model of the river bank as indicated in the sketch of the demonstration model in Fig. 1 A. The model is now ready for class use.

For the children's model in clay, two irregularly shaped uprights are made by flattening rolls of material, of similar bulk, on to the modelling board as in Fig. 2 A. These are placed one on the top of the other, and with a knitting pin or similar tool a hole is drilled through them to receive a pivot. Next (Fig. 2 B) a kindergarten stick is taken, and this is treated in exactly the same manner as was the twig in the teacher's model. Of course a twig may be used by the children if wished, though for town schools the kindergarten stick may be more easily obtained. The pin is thrust through the uprights and the stick, and if the model be mounted on a box lid, it may be used on a projecting edge—e.g. a boot-box placed on a sheet of looking-glass to represent water, as in Fig. 2 C. A type of bucket used by the Egyptians is shown in Fig. 2 D. This might be modelled in plasticine or clay.

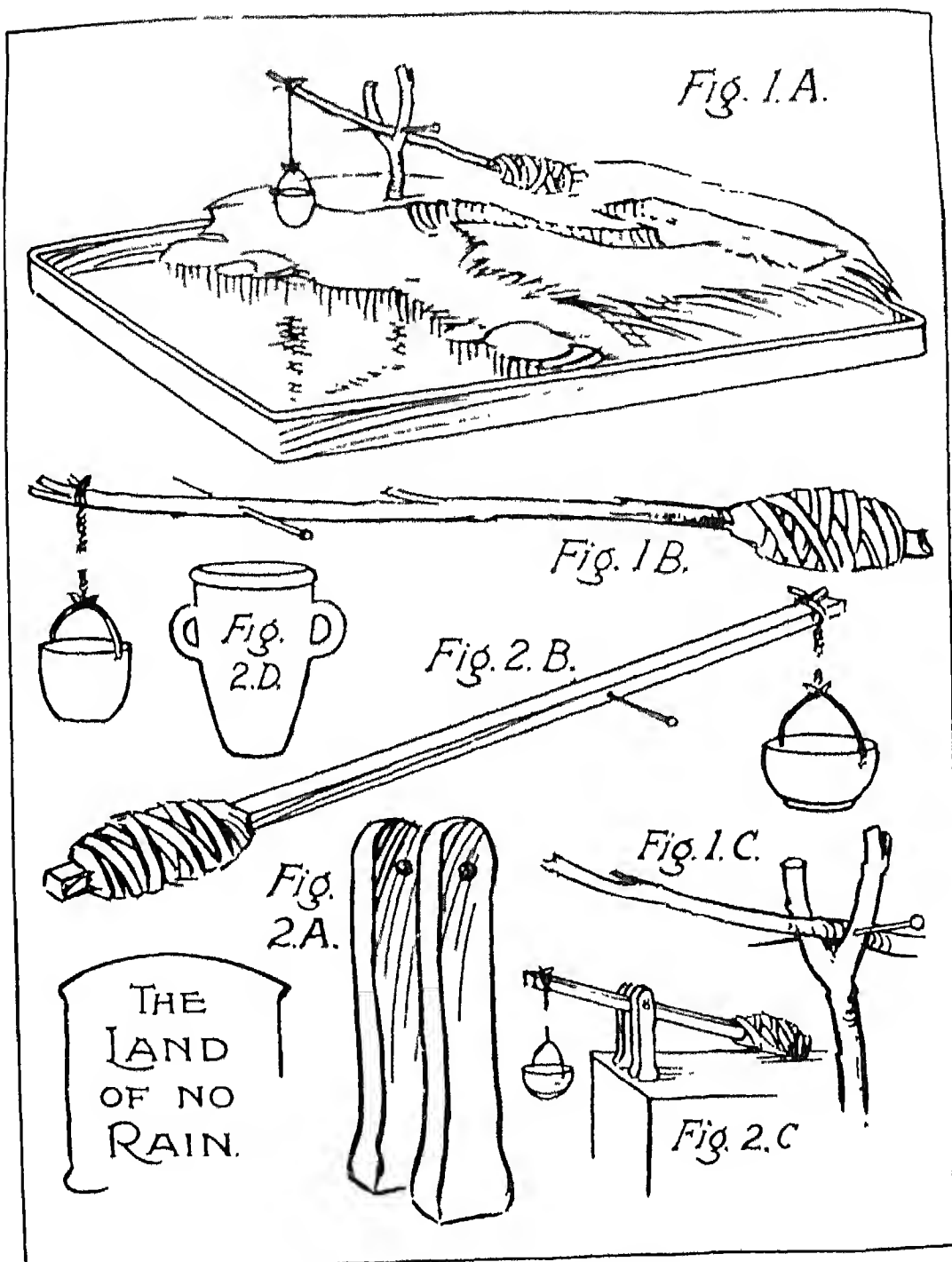


FIG 1. TPACHFR'S MODEL OF NILE SHADOOF
FIG 2. CHILD'S MODEL OF NILE SHADOOF

V. CAKES WITHOUT CURRANTS

The grinding of corn depends upon pressure, which crushes the grain to liberate from the husk the flour within. A study of some of the early mills, or querns, will provide useful and interesting handwork exercises for young children.

One of the simplest forms of querns is shown in Fig. 1 B. It looks much like a pastry board and rolling-pin. Children will readily appreciate this analogy, for this is exactly the manner in which the mill was used, a cylindrical piece of stone being rolled upon a flat stone slab on which the whole grains of wheat were spread. To make this model, the children should take pellets of clay and press them together, side by side, on the modelling board to form a small slab. This may be pressed down a little to form a concavity in the middle, to indicate the wear and tear on the stone that would be apparent in the course of time. Next, a sphere of clay is taken, rolled between the palms of the hands and tapped at the ends on the board to form the cylindrical roller. Fig. 1 A shows another simple type of quern that was in vogue among the Egyptians. With this mill the worker knelt on the flat portion, bending over a little, and rolling the stone on the oblique surface. The preparatory stage of modelling is the same here as before. A slab is built up, and to this a wedge-shape is welded with fingers and thumb, a roller completes the model.

A more complicated mill is shown in Fig. 1 D. If this is considered too difficult for the younger children, perhaps one could be made for demonstration purposes. To a circular slab of clay, a fairly regular mound-like mass of clay is added. Next, a conically

shaped collar is modelled so that it will fit the base like a ring. A fair amount of clearance is left at the top of the ring, for it was into this space that the grain was dropped. Into the edge of the ring, at the top, a wooden peg is fixed. The two parts are put aside to dry separately. When dry, the parts are assembled as shown in Fig. 1 D.

The toy miller of Ancient Egypt will certainly appeal to the children, and seeing that it is a working toy they should be given the opportunity of making it. For this purpose, thin cardboard, about the thickness of a post-card, a box-lid, a cork and a few baby paper-fasteners will be required. The figure itself will receive first consideration. It is tolerably simple for the children to draw directly, but, in case the teacher wishes, it has been drawn on a large scale so that it may be traced from the plate. Fig. 2 C shows the body, Fig. 2 D the arms and Fig. 2 B the legs. The legs are cut on double card, to fold as shown, and are provided with flaps. The holes are to receive the paper-fasteners. The assembled figure is shown in Fig. 2 E. It is painted black and white, and a slice is cut from the cork and glued between the arms. A box-lid (Fig. 2 A) is provided with slits $\frac{1}{8}$ in. apart, through which the leg flaps are thrust and bent back on the under side, and a hole is made for the string, tied through the end of the body. (The dotted portions show the positions of the wedge and the cork respectively.) A wedge of clay, or of card, constructed as shown in Fig. 2 F is glued to the upper side of the lid and the remainder of the cork to the under side to form a handle.

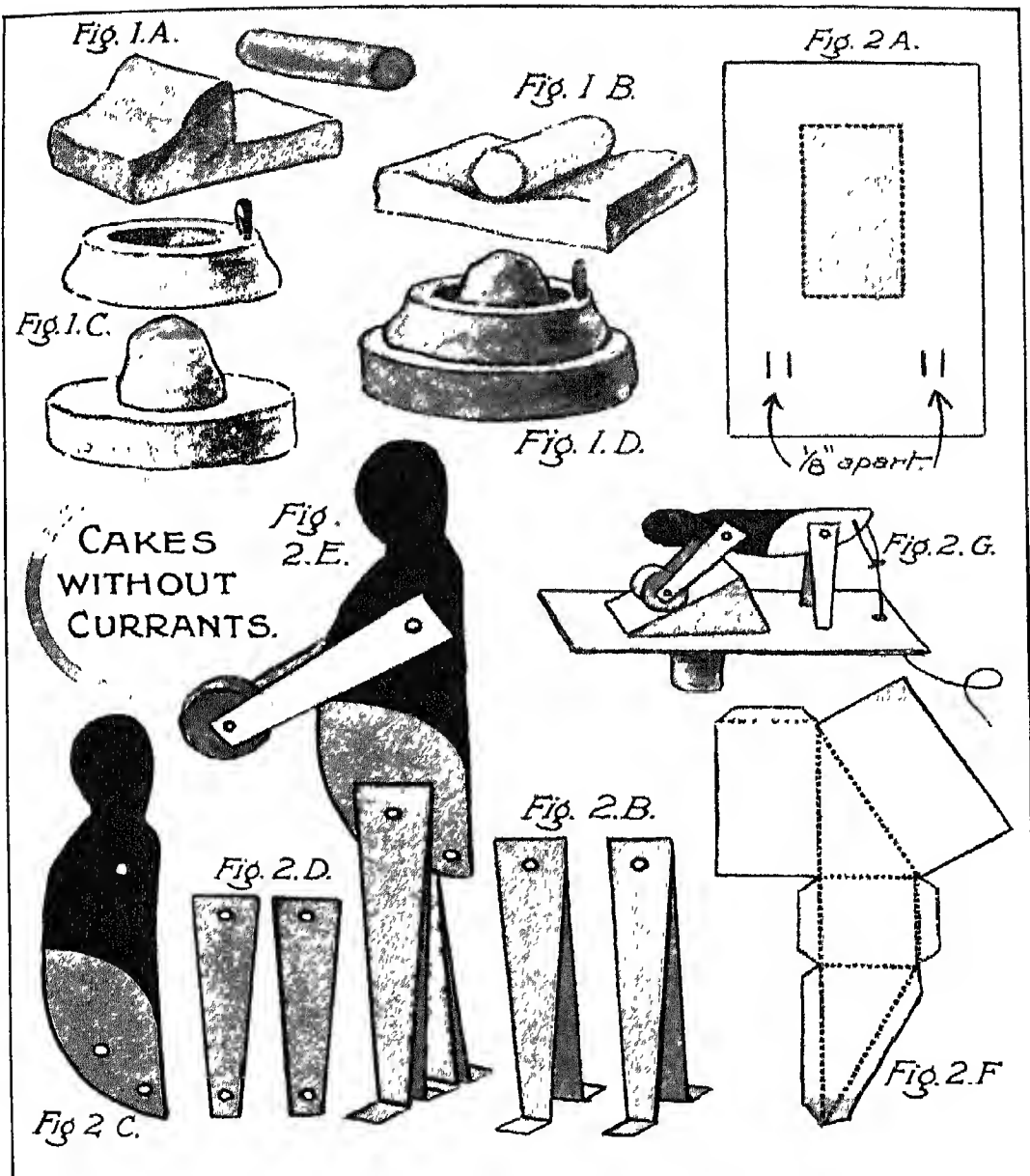


FIG 1 PRIMITIVE MILLS IN CLAY OR PLASTICINE
 FIG 2 WORKING MODEL OF EGYPTIAN TOY MILLER IN CARDBOARD

VI. THE LAKE-MEN

This lesson deals with the Lake-Dwellers, their homes, manners and customs. The children have been told how these people cut piles of wood, drove them into the soft mud in the shallow lake waters, and went on to weave a floor, sides and roof to form their wattle dwellings, which were afterwards plastered with clay.

An appropriate model for our first exercise is a simple Lake-Dweller's house, and if this be built up on a plasticine base, it may be placed in a tray of water. If plasticine is not available, clay may be used, in which case powdered blue and green pastel, or looking-glass, will serve to represent the water. For the model, a cardboard box-lid, some cardboard, raffia, bits of straw, thin twigs and clay or plasticine will be necessary. Since we must work more or less to size, we will start with the floor of the hut, which is formed by the lid of a box, with most of the face of the lid removed, leaving the sides and edges to form a simple loom. With needle and raffia, the flat surface is covered with the warp threads, working from one side to the opposite one. When this is covered, the woof threads are made working over and under the warp threads (Fig. 1 B). Thus completed, the children are ready to begin the process of house-building in real earnest. A flat slab of plasticine is placed on the board, and into this are driven tiny "piles" consisting of short lengths of twigs, arranged in a roughly rectangular shape, a little smaller than the prepared floor of the house. To prevent the twigs from slipping through the floor, pellets of plasticine are fixed at the tops of the piles (Fig. 1 A). The next step is to provide for the construction of the cardboard body of the house. This is shown diagrammatically in Fig. 1 C. It is made of thin card,

with gable-ends and pointed flaps (to receive the roof) and is stuck with seccotine at the bottom to the sides of the already prepared floor. The flaps are bent inwards, and a roof consisting of a bent piece of card large enough to overhang a little on each edge is stuck to them (Fig. 1 D). The walls and roof of the house are now smeared liberally with glue or seccotine, and short lengths of brown raffia, cut straw, or fine twigs are added until the whole is covered. When quite dry, the house is lifted carefully and placed upon the heads of the piles. A tiny ladder at the door and a small canoe of thumb-nail dimensions, moored by means of a length of thread, complete an effective model, especially if it be placed into water (coloured with washing blue) as previously suggested (Fig. 1 E). As there is a fair amount of work to be done in the construction of this model, the teacher will be well advised to allow the children to work upon it in small groups of three or four.

The lesson further tells how the early Lake-Dwellers made dugout canoes for the purpose of travelling from place to place. The making of such a canoe on similar lines provides an excellent clay-work project. First of all, allow the children to roll a cylinder on the modelling board to represent the tree-trunk (Fig. 2 A). Now, with the blades of their modelling-tools they should slice away the top surface and ends to make a solid boat-form as in Fig. 2 B. Lastly, the point of the tool is used to remove the interior (Fig. 2 C), leaving one or two seats. When dry, the outside of the boat should be painted green and dark brown, and the interior black.

A bone harpoon, shown in Fig. 3, makes another simple clay-modelling exercise.

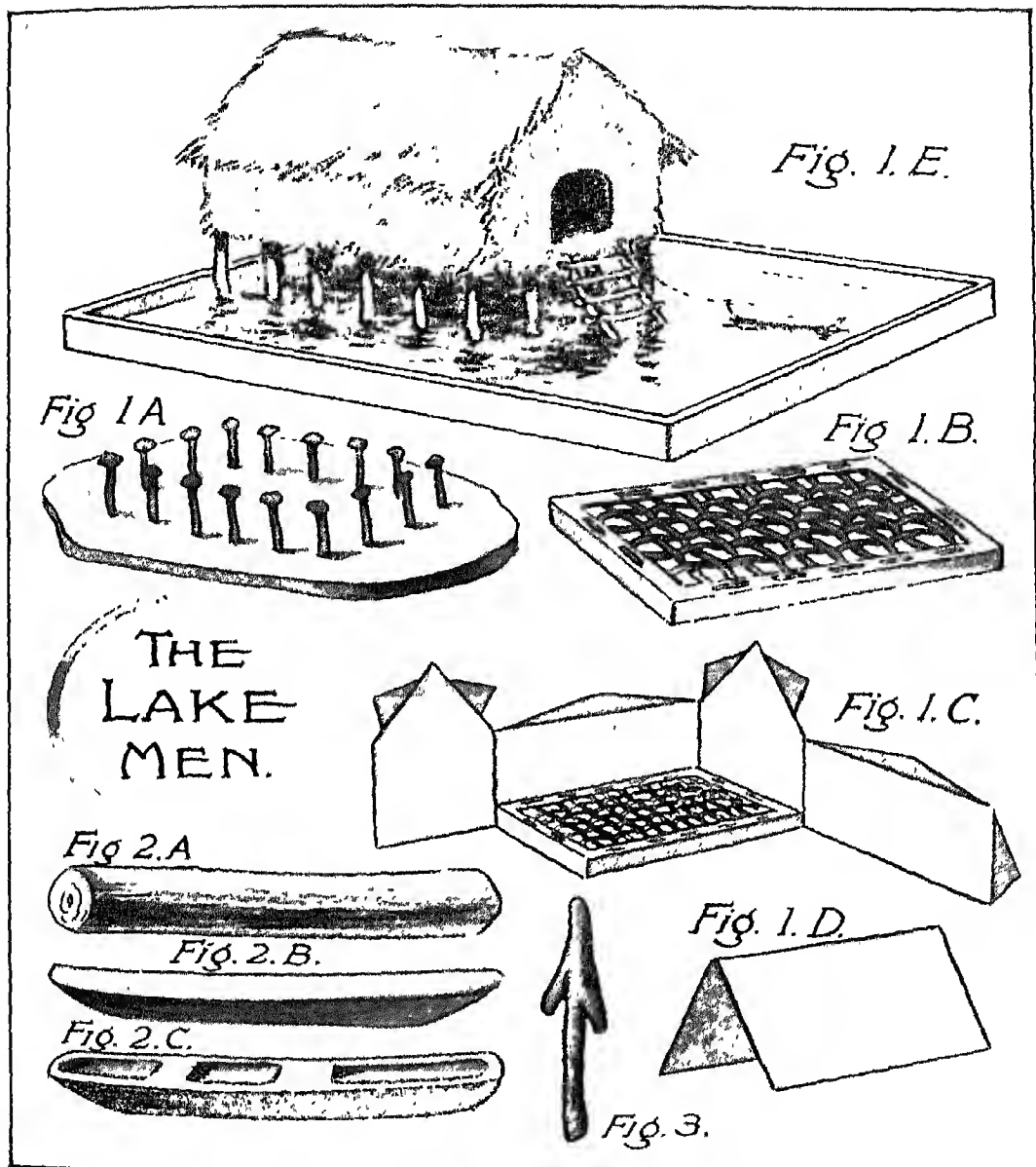


FIG 1 MODEL OF LAKE-DWELLER'S HOUSE
 FIG 2 DUGOUT CANOE MODELLED IN CLAY OR PLASTICINE
 FIG 3 MODEL OF A HARPOON

VII. THE LAND THAT NEVER CHANGES

This lesson deals with Egypt in general and with the habitations of Man and his environment in particular. Naturally, the first aspect is that of the early utilisation of the Nile mud for building purposes. In their scripture lessons, the children will have heard of the tasks set to the Israelites during their years of captivity in Egypt, and they will have further heard how the Israelites were compelled to make bricks, and later to make bricks without straw. In the lesson under consideration, the teacher describes how the brickmakers of Egypt used a wooden brick-mould in order to secure that the sun-baked bricks should be of uniform shape and size for building purposes. (A modern brick of standard size might be shown to the class.) The children will gain a clearer and better conception of the process of brick-making if they are allowed to do something of the kind themselves. Fig. 1 shows how an ordinary match box with its base removed may serve as a brick-mould. A small handle of thick card should be stuck on to one side of the box. Pellets of soft clay, or plasticine, are packed tightly into the box, side by side, and the top is smoothed over with the ball of the thumb. If a class is at work on the exercise, a wall can be built of the bricks the children have made.

The homes of the Wanderers of the Desert are also dealt with in the lesson, and we may refer to the Biblical expression, "To your tents, O Israel!" The children will delight in making simple tents of the nomadic camel-men. A number of uprights of varying heights are constructed as shown in Fig. 2 B. The shape shown in Fig. 2 A

might be $1\frac{1}{2}$ in., 2 in. or $2\frac{1}{2}$ in. in height the width of each folded portion $\frac{1}{4}$ in. Four triangular flaps are allowed for at the base of each upright. Next, a cardboard box-lid is taken, and seven uprights are stuck on to this in irregular rows of 2, 3 and 2 as shown in Fig. 2 C. (The long ones should be medially placed.) Now a small piece of scrap needlework material of a light brown colour is required, this is fixed over the supports so that it will lie flat for a little way on the base board on three sides. After it has been fitted, it is cut to shape, and may be fixed down to the card by means of small paper-fasteners.

No lesson on the land of Egypt would be complete without reference to the palm tree. Our last drawing on this plate shows how a realistic model of the palm tree may be constructed either by the teacher, on a large scale, or by the children working to smaller dimensions. Take a mass of clay, and roll it to the shape of the trunk of the tree. As it is liable to collapse, when in its soft state, thrust a piece of kindergarten stick, or pulp cane, down the middle (Fig. 3 A). Next take a slice from a large cork, stick it to a card base, and bore a hole into it so that the projecting stick will fit into the hole. Fix the tree stem into position, add small masses of clay to give the stem a roughened appearance, add stems of yew at the top and a few pellets of clay to represent clusters of dates. When dry, the stem may be painted dark brown, or, alternatively, dark brown plasticine may be used in the construction (Fig. 3 B).

Fig. 1.

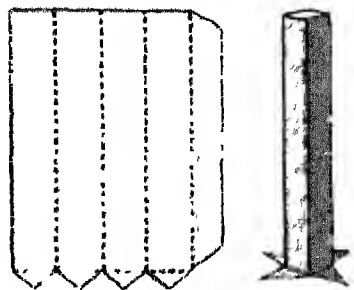
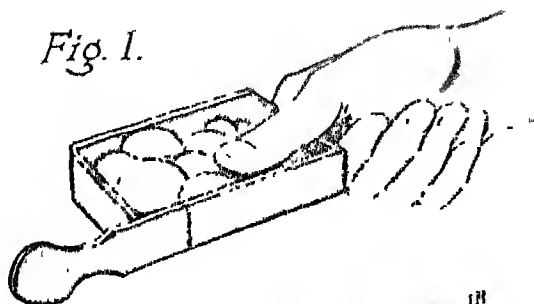
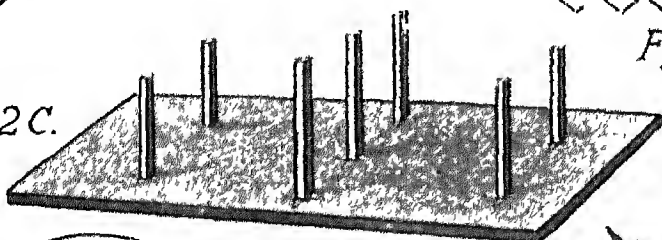


Fig. 2A. Fig 2B.



Fig. 2C.



THE LAND
THAT NEVER
CHANGES.

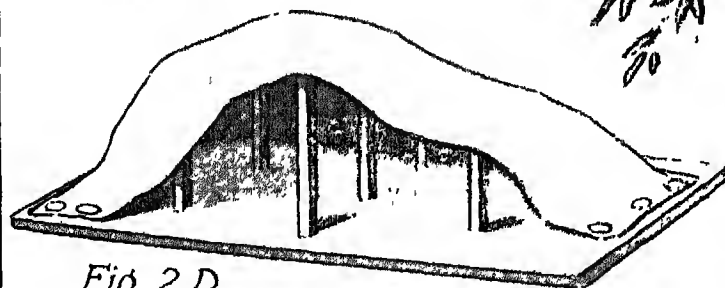


Fig. 2D.

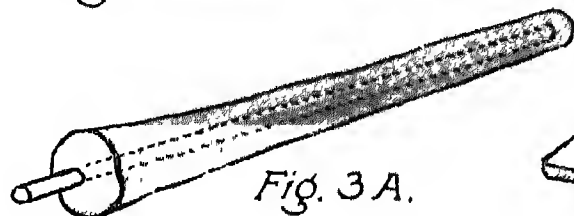


Fig. 3A.

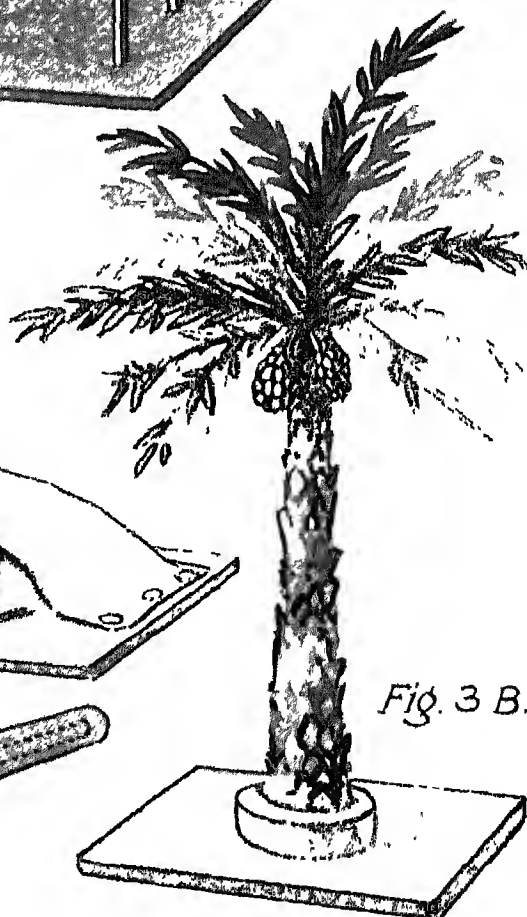


Fig. 3B.

FIG 1. A SIMPLE BRICK MOULD FROM MATCH BOX
FIG 2. A DESERT-DWELLER'S TENT
FIG 3 A BUILT-UP MODEL OF DATE PALM

VIII. POTS AND PANS

This lesson deals with the work of the early potters, how they built up their pots and pans by hand, and later, evolved mechanical means of achieving symmetrical and often beautiful results to be seen now in our museums. It is only natural that this lesson should follow on from the last, showing how, after utilising clay for bricks, man progressed to construct of it implements for domestic use.

The first potters' wheels, as seen in the ancient Egyptian wall-paintings, are extremely ingenious, and the children should have an opportunity of experimenting for themselves. The first handwork exercise is a simple potter's wheel on a small scale. For this model an old cotton-reel and a wooden meat skewer that will fit, approximately, into the hole of the reel will be required, also a drawing-pin, some cardboard, and a sheet of glass—an old photographic plate will suit admirably. The reel is stuck firmly down to the glass with seccotine. Next, the meat skewer is cut to length so that when one end rests below on the glass the other end projects about $\frac{1}{2}$ in. above the reel. If the skewer fits too tightly its thickness should be reduced with glass paper (This operation should be done before the skewer is cut.) To minimise friction, the skewer may be rubbed with a little vaseline, or similar grease. The skewer having been cut, a disc of card is fixed to the end by means of a drawing-pin, and a smaller disc is put beneath to serve as a washer (Fig. 1 A). This assembled portion is now put into the reel as shown in Fig. 1 B, when the top may be rotated at will.

The beautiful symmetrical figures of the

pottery shown in the Egyptian wall-paintings lend themselves well to free-cutting exercises that the children may work out in tinted papers. The procedure is shown in Fig. 2 A. A sheet of paper is folded along the middle, and with scissors, half the vase shape is cut on the fold, so that when opened out, the symmetrical form is seen.

Fig. 2 B shows other shapes that might be attempted by the children. If these shapes be cut on gummed paper, a pretty frieze may be built up for mural decoration by alternating figures mounted on strips of dark grey or brown paper, with borders of pastel at top and bottom (Fig. 2 C).

During the course of the lesson, the manner in which early Man possibly built up his pots on the lines practised by the African native potters of to-day, is described. Our last handwork exercise on this plate deals with the construction of a pot by a similar procedure. The first step (Fig. 3 A) is for the children to roll out on their modelling-boards a number of thin threads or "snakes," as the children delight in calling them, of clay about $\frac{1}{4}$ in. in diameter. These are stroked now and again with the sponge to keep them moist. Next a circular and spiral base is coiled on the board, as in Fig. 3 B. After three or four coils have been fixed as shown, gradually the rolls are taken upwards and outwards (Fig. 3 C), new threads being fixed to the ends of those used up. The hands are used inside and outside to work the clay into shape. When the requisite height has been attained, the rounded rolls are pressed with finger and thumb into the regular sides of the finished pot. A simple pattern incised with the finger nail will complete the pot (Fig. 3 D).

Fig. 2 A.



Fig 1 A.

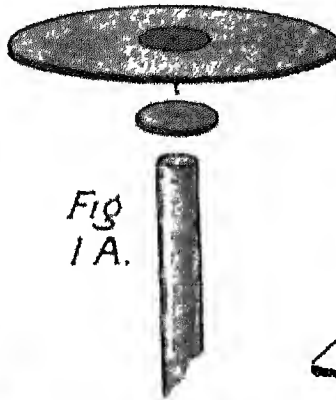


Fig 1 B.

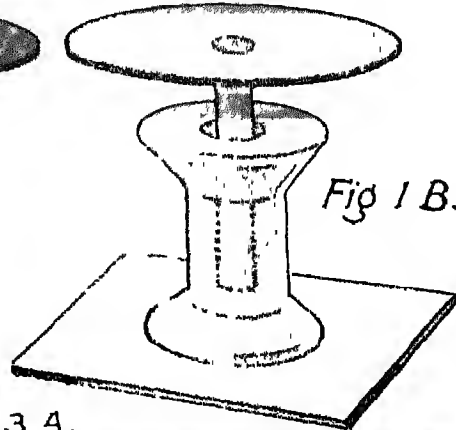


Fig 3 A.



Fig. 2 B.



Fig 3'B.

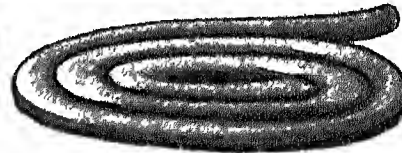


Fig. 3C.

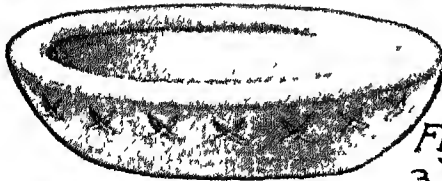


Fig. 3D.

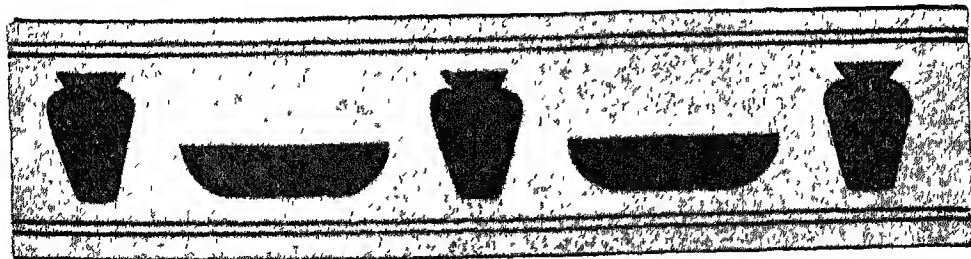


Fig. 2 C.

- FIG. 1 A SIMPLE POTTER'S WHEEL
 FIG. 2. VASE SHAPES IN PAPER-CUTTING
 FIG. 3 A CLAY BOWL MADE BY BUILT-UP METHODS

IX. MAN'S NEW CLOTHES

We proceed in this lesson with man's early activities in the matter of providing from his environment material to be converted into clothing—for protection, and, later, for adornment. The teacher's task is to ensure that the children have a clear notion of the fundamentals of weaving, and of the way in which the woof and warp threads are woven to produce a durable material, which can be made up into garments.

The lesson opened with mention of the whorls and spindles of the early Lake-Men. Our first exercise is that of making a model spindle. A meat skewer, or any similar short length of wood, is used. This is cut to about 4 in. to 5 in. in length (Fig. 1 A). One end is sharpened a little if necessary, and at the other end, a notch is cut on one edge, as shown in Fig. 1 B. A method of constructing a whorl is shown in Figs. 1 C and 1 D. Several discs of card are cut (about 1 in. in diameter) and punched through the centre. A leather-punch is a useful tool for ensuring that the holes are regularly and neatly made. The discs are stuck together so as to form a solid disc, and this is slipped over the stick as shown in Fig. 1 D. Care must be taken to punch the holes so that the fit shall be a tight one. If this method of preparing the whorl is too complicated for young children, a ring of plasticine can be fixed round the stick in place of the cardboard disc. The children can now tie a length of wool on to their spindle and try the twisting operation described in the lesson.

A model of a distaff may be made by taking a short length of pulp cane or kindergarten stick, and twisting a mass of cotton wool (or wool from a sheep's back) round it with thread, extending the thread and fixing a tiny clay or plasticine spindle at the end (Fig. 2).

In order to impress upon the minds of the children the actual procedure of weaving, we next show a simple weaving-exercise of a paper mat. In this exercise the children may themselves experiment with the warp and woof threads (the over and under threading) and at the same time make something attractive and useful. The class should be provided with squares of 8 in. cut from brown paper. The squares are folded into halves and a margin of 1 in. is drawn round the three unfolded edges. From the fold, within the middle portion, horizontal lines are drawn at intervals of $\frac{1}{2}$ in., and these are cut as shown in Fig. 3 A. The shape is turned round, and strips $\frac{1}{2}$ in. wide of two contrasting colours are woven over and under as shown in Fig. 3 B. The projecting ends should be trimmed to the edge of the big square. To cover these neatly, two brown paper squares are cut so as to form a frame to be stuck at the front and back respectively (Fig. 3 C). These are cut on the folds as before. Older children should bind the edges with coloured strips $\frac{1}{2}$ in. wide cut at an angle of 45 degrees to secure a neater finish (Fig. 3 D). The whole completes a useful model (Fig. 3 E).

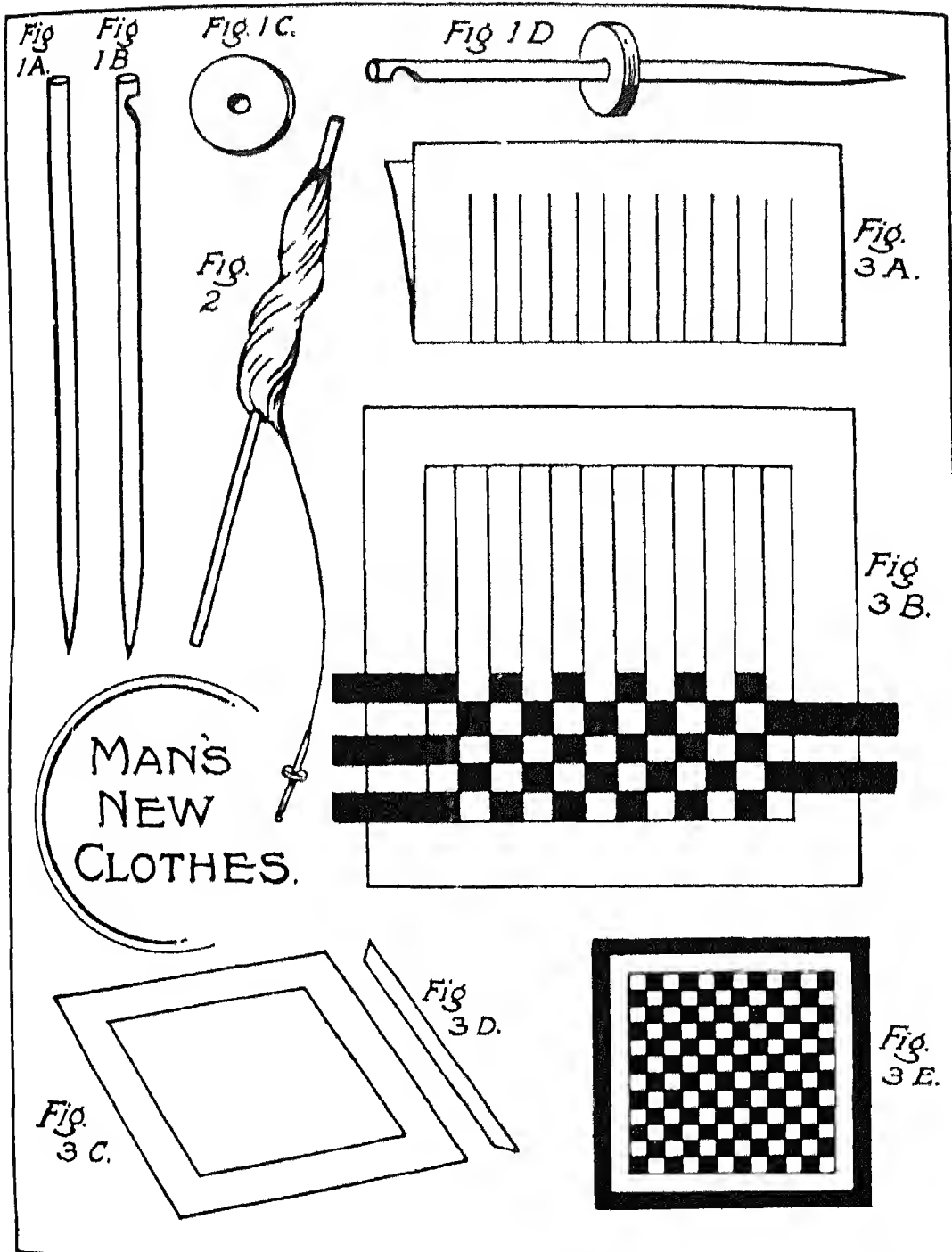


FIG 1. A SPINDLE AND WHORL
 FIG 2. MODEL OF DISTAFF
 FIG. 3. A USEFUL MAT FORMED BY WEAVING

X. EARLY DRAWING AND WRITING

Perhaps no lesson will be more fascinating to the young child than that which deals with the beginnings of writing. The first lesson of this series, "Sticks and Stones," dealt with the primitive art of the Cave-Men, who painted pictures on the walls and ceilings of their caves. It will be noticed that the drawing of figures and animals preceded the use of an alphabet, and we therefore consider it appropriate that reference should be made to this fact in the handwork lesson.

A simple yet attractive project which will appeal to young children is illustrated in Fig 3 B. It consists of a model representing a Cave-Man drawing on the wall of his cave. Take a boot-box and remove the lid and the rectangular parts of three sides. On the outside of the three rectangular openings paste pieces of red, blue and yellow paper respectively. The front edges have roughly torn strips of brown paper pasted to them. In one corner is fixed a brown paper "mound" and rough "wings" of brown paper are pasted within after the manner of a theatrical stage. Next, a cut-out of the Cave-Man (Fig. 3 A) coloured with crayon or paint is pasted to the floor of the cave. The figure has been drawn on a large scale so that it may be traced directly from the plate. It is so placed in the cave that the hand may touch the wall and where it does so a rough cave-painting is sketched with pastel. The floor is sprinkled with stones and soil. The brown paper front should cover the box more than is shown in the sketch,

which has purposely been left open to explain construction. The tinted lighting produced by the coloured papers gives a realistic effect.

We next pass on to the subject of the cuneiform writings of the Babylonians. Here, again, the children should practise for themselves the procedure described in the Children's Story. For the actual writing, a square-ended tool is necessary. A kindergarten stick will do admirably,—or a wooden meat skewer may be cut with a pocket knife to a square end. Allow the children to prepare rough slabs of clay, or plasticine. These slabs are held in the left hand in a semi-upright position (Fig 1 A) while the square-ended tool is manipulated in the manner shown. The angular edge is prodded into the clay and drawn along to produce the line. The children will be pleased to cover the slabs with simple cuneiform characters (Fig 1 B).

During the course of the lesson, the children are told that the Babylonians sealed their letters by means of seals, which were something like modern garden rollers in miniature. The making of such a seal provides our last handwork exercise on the plate. A cylinder of clay is rolled on the board, and through this, a small kindergarten stick or wooden tooth-pick is thrust (Fig 2 A). Next, a long strip of cardboard is bent at the middle (Fig. 2 B) and fitted over the ends of the wooden axle (Fig 2 C). The roller is finally covered with cuneiform characters.

EARLY
DRAWING
& WRITING.

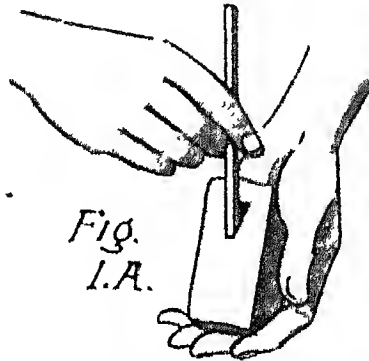


Fig.
1.A.

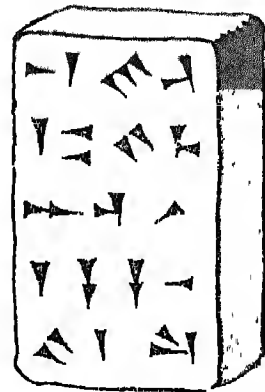


Fig. 1.B.

Fig. 2 A.

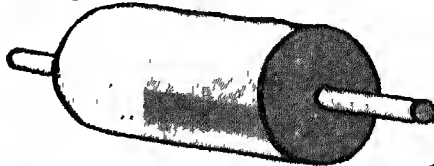


Fig 2 C.

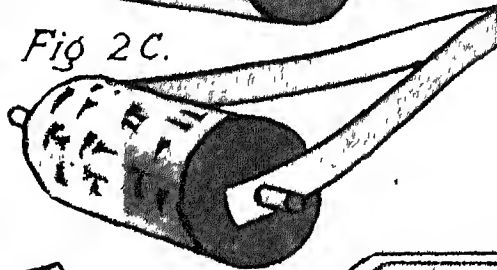


Fig.
2 B.



Fig
3 A



Fig. 3 B.

FIG. 1 BABYLONIAN WRITING ON CLAY
FIG. 2 A BABYLONIAN CUNEIFORM SEAL
FIG. 3 A CAVE DRAWING PROJECT

XI. PENS, INK AND PAPER

We continue with the absorbing subject of the beginnings of writing, but before approaching the matter of "Pens, Ink and Paper" we must describe one handwork exercise that really belongs to the previous lesson, but was omitted on account of exigencies of space. The lessons on writing would be incomplete without reference to an appropriate handwork model to illustrate the hieroglyphic writing of the Egyptians, which, as the children have already heard, was carved on stone. Our exercise is that of making a clay tablet bearing the name of Ptolemaios incised on it as in Fig. 3. In order to make the model doubly attractive, we have arranged that it shall be of a utilitarian character, and take the form of a paper-weight. The first stage of the model is to make a rectangular slab (Fig. 3 A). This the children take between forefinger and thumb, in an upright position, and carefully roll over, pressing slightly to round off the four corners. Next, a base is made to extend beyond two sides as shown. A match-stalk is stuck a little way into the base and the upper slab is pressed on to the upper part of the match (Fig. 3 B). This is done to hold the two parts together when dry; without the match, there would be danger of the parts separating when the model is lifted. The final decoration is done with the point of the needle-tool. A border is added to the upper portion; a number of vertical strokes, starting from the middle, are incised upon the base and, lastly, the hieroglyphic characters are marked in the damp clay (Fig. 3 C). The model is set aside to harden, and when thoroughly dry may be tinted with bright water colours, and varnished, if desired, with pale copal varnish.

In this lesson, the children learn how the Egyptians utilised the strands of the papyrus plant to produce a suitable writing surface. Fig. 1 A shows how by pasting strips of torn paper side by side, with their edges overlapping, the children may build up a continuous and fairly flat surface. The longitudinal strips are stuck first, then, when they are dry, the transverse strips are stuck down on them. Necessarily the edges will be rough. To finish the task off, a cardboard frame is stuck above the completed sheet (Fig. 1 B).

Older children might like to copy the Egyptian Scribe's "book" which was made from papyrus reed. In this instance, a frame cut to the shape shown in Fig. 2 C will be used, and finished off with a bright wool tassel. A piece of dried grass stem, frayed at one end as in Fig. 1 D, should now be used to add a few lines of Egyptian characters, which show a further development of the earlier hieroglyphic writings dealt with in the previous model.

Our last model on this plate shows a wax tablet similar to those used for writing upon by the Greeks. Fig. 4 A shows its construction in a diagrammatic fashion. Three rectangular shapes of cardboard are cut, placed together, and punched at each of the corners so that the holes correspond. One has the middle portion cut out to form a frame, the next is painted black or dark brown and is covered with candle-wax, or plasticine, the third card is left untouched. If plasticine be used there is no need for the dark surface. The three shapes are fastened together by means of tiny paper-fasteners, to form a sandwich. Next, with the aid of a knitting pin, to act as a stylus, rows of Greek characters are added.

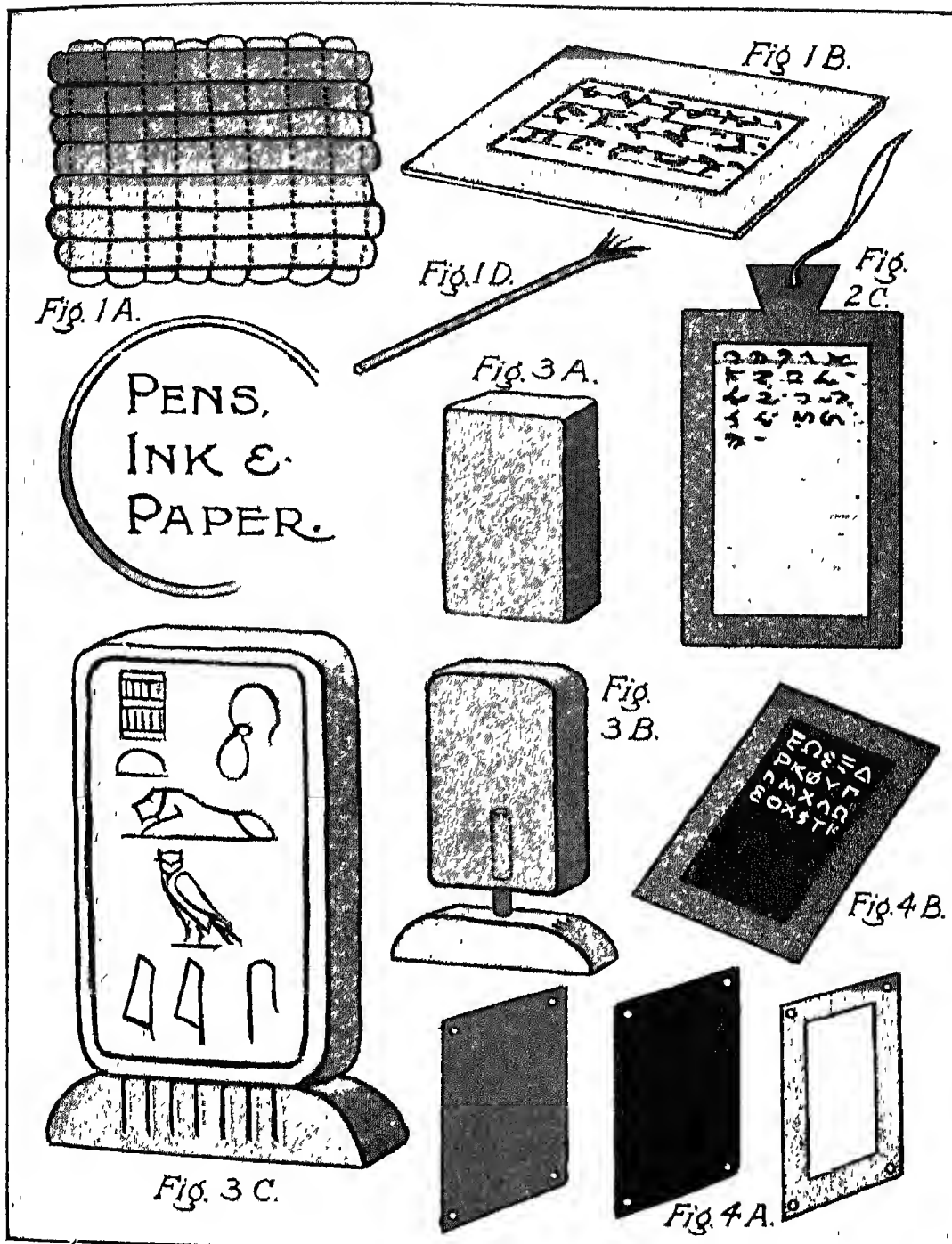


FIG 1 EGYPTIAN PAPYRUS WRITING
 FIG 2 EGYPTIAN SCRIBE'S BOOK
 FIG 3 AN EGYPTIAN PAPER-WEIGHT WITH HIEROGLYPHIC INSCRIPTION
 FIG 4 A GREEK WAX WRITING TABLET

XII. WINE AND OIL

This lesson leaves Man's accomplishments and reverts to his necessities, dealing as it does with two natural products, the fruits of the vine and the olive-tree. Again and again in this lesson will the observant teacher find possibilities for correlation with the scripture lessons, for both the vine and the olive were extensively cultivated in the Holy Land.

Reference is made in the lesson to the skin bottles which are common features of the East. Our first handwork exercise consists of a simple model of one of these bottles to be constructed in clay, or in plasticine. Very young children might use the shape as a free-cutting exercise in brown tinted paper. Our illustrations show the steps to be followed in the making of the plastic model. The children, taking the portion of clay allotted to them, place it between the palms of the hands, which are cupped slightly, and by a rapid rotary movement produce a ball (Fig. 1 A). This is taken between the fingers and thumb of the right hand and pressed into the shape shown in Fig. 1 B, care being taken to see that one end is a little larger than the other. Next, five stunted cone shapes, one larger than the other four, are constructed and are affixed in the manner shown (Fig. 1 C) to represent the neck and legs respectively of the inflated skin. The model at this stage is held in the left hand, and with the tip of the right forefinger the joins are smoothed out on to the body. A few surface markings are added with the point of the needle-tool to imitate the lacing at the neck. A tiny piece of string, or thread, is tied round the end, and a clay cup completes the model (Fig. 1 D).

Our next modelling exercise is the making of one of the oil jars seen in the illustration of the marble relief of Greeks employed in the process of wine production. The

first stage here is exactly the same as in the previously described model, for again it is begun from the sphere. When the sphere is completed and approaches something like perfection in contour, it is placed in the left hand, and the ball of the right thumb is applied in the manner shown (Fig. 2 A). The hand and the thumb are both rotated to hollow out the interior to produce a circular bowl (Fig. 2 B). This procedure is doubly interesting, for it shows another method of producing a bowl. In the lesson on "Pots and Pans," the children built up the pot by means of the coil method; here they work from the solid mass, a useful teaching alternative. Next, a rounded lip is added. This takes the form of a worm of clay bent round and joined at the ends to form a ring as in Fig. 2 C, this is applied to the opening of the bowl (Fig. 2 D). Following this, a strip of clay, square in cross-section, is prepared (Fig. 2 E), bent to a ring and added to the rounded lip to project a little as in Fig. 2 F. The completed jar is held sideways, and the round shaft of the modelling tool is placed horizontally along the rounded ring. The jar is rotated, and with very gentle pressure the concave curve in the rim is produced. For the cover of the jar, a ball of clay is pressed into the mushroom shape shown in Fig. 2 G, which is made large enough to cover and project a little over the jar. A worm of clay is fixed round its edge to complete the model (Fig. 2 H).

The last exercise illustrated is that of a Greek wine amphora cut from folded tinted paper (Fig. 3 A). This is essentially a beautiful form. The rectangular portions on the neck (Fig. 3 B) may be shown by sticking on narrow oblongs of a contrasting tint, or older children might remove them with the point of a knife.

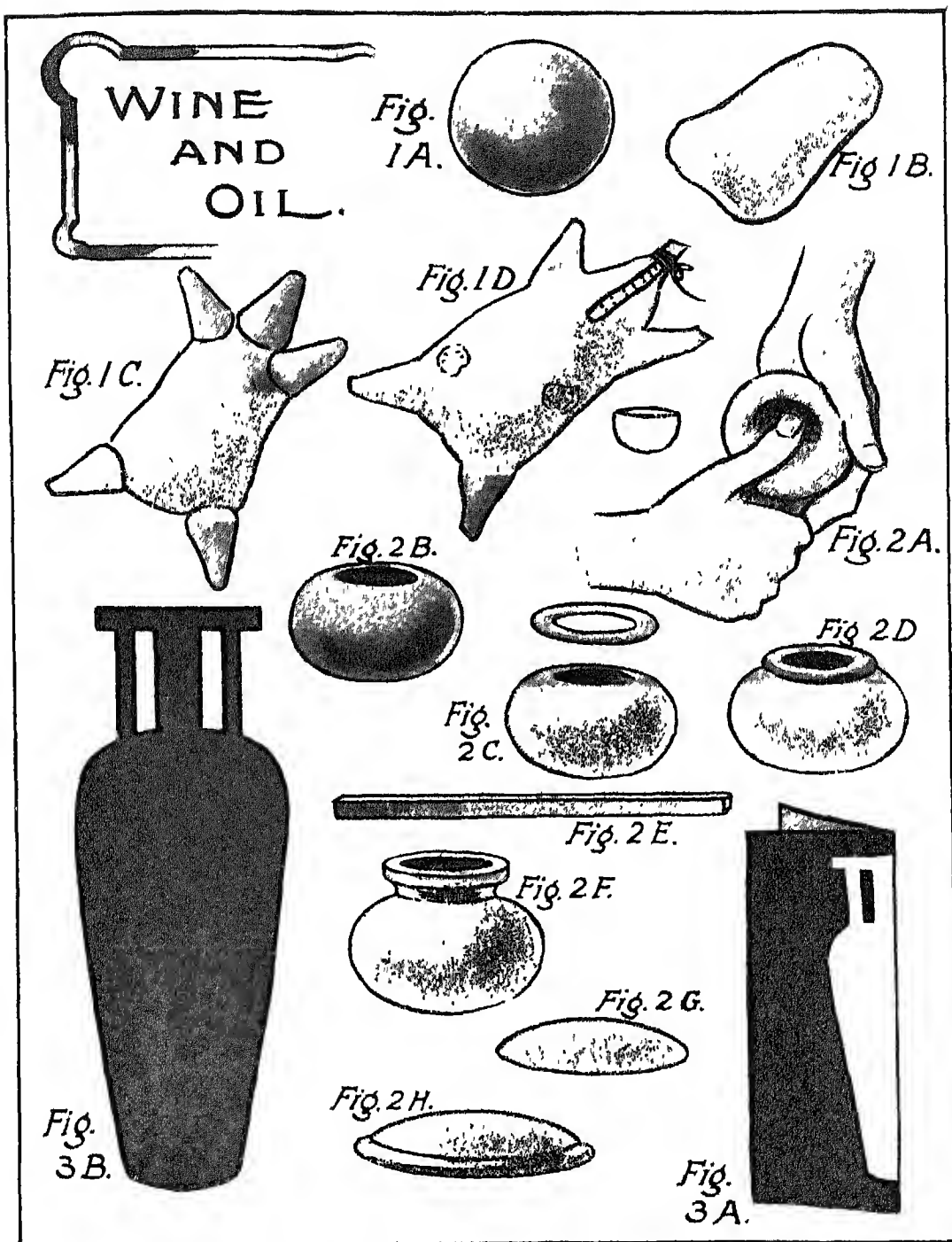


FIG 1 PLASTIC MODEL OF EASTERN SKIN BOTTLE
 FIG 2 A GREEK WINE JAR
 FIG 3 CUT-OUT GREEK VASE

XIII. HORSES AND CHARIOTS

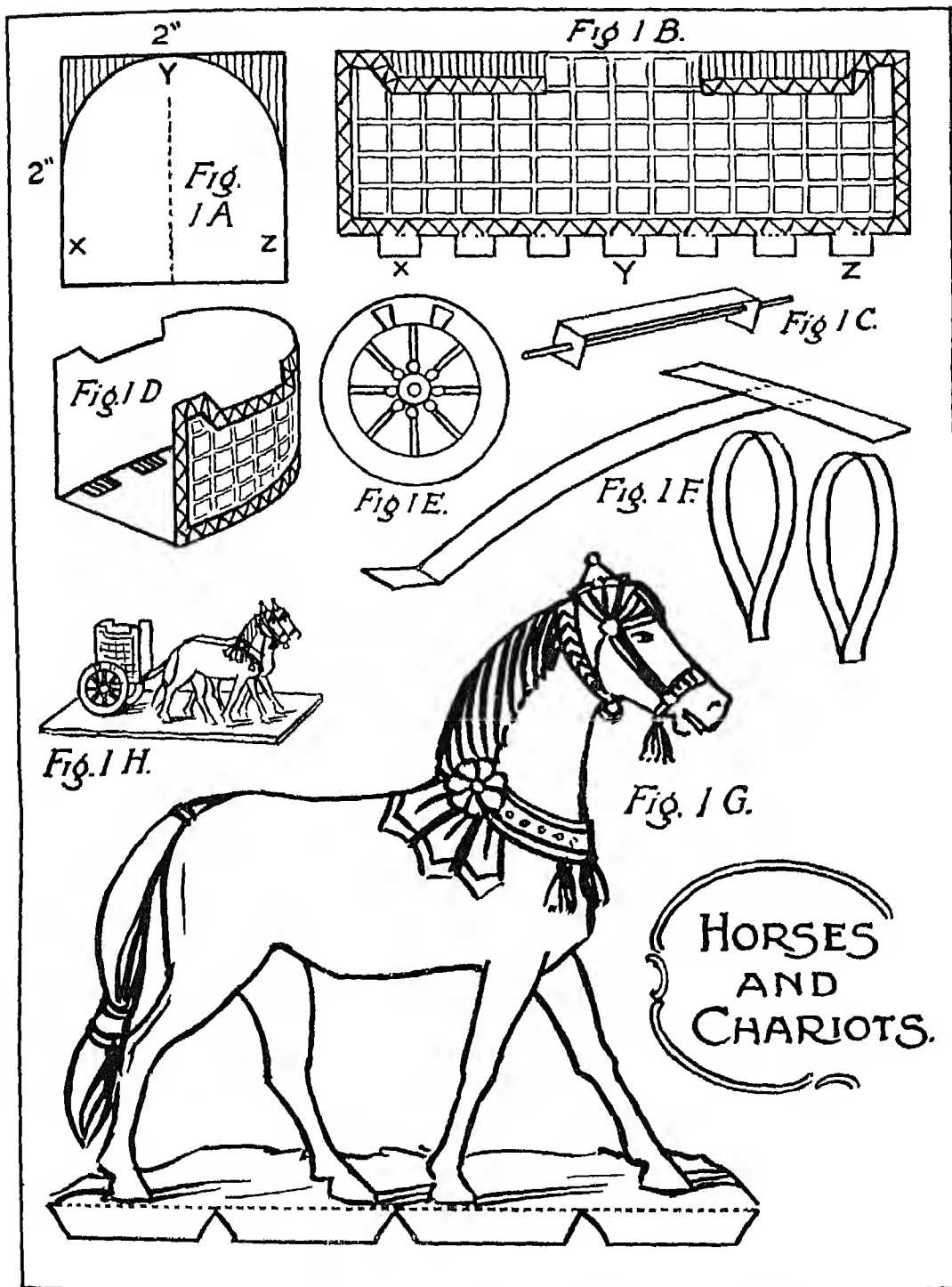
This lesson, the last of the historical series, deals mainly with horses and ancient chariots. Young children are always interested in horses and carts of any kind, and they usually enjoy making models of vehicles, particularly if the wheels go round. If a horse can be added, the model is made more pleasurable still to them.

The sketch of the horse is simply drawn, so that the teacher may place semi-transparent paper above the plate, and go over the sketch with pencil, afterwards again outlining the shape with hectograph ink to be copied on the school duplicator. In this manner, each child in the class may be readily supplied with a pair of chariot horses that may be coloured during the drawing lesson.

Let us next consider the planning and development of the chariot, which is a simplified copy of the one shown in the illustration of the Assyrian king's chariot in the Class Picture. In planning, allow the children to begin with the base, or floor, of the chariot. This may be done in stout paper or card. If the latter be used, it will be advisable for the younger children to do their planning on 1 in. squared paper, using the shapes they cut as patterns, or templates, around which they may draw with the pencil, directly on to the card. Fig. 1 A shows this base, which is planned on a 2 in. square. In order to ensure that the curved sides shall be exactly symmetrical, it is best to allow the children to cut the curve having the shape folded down the middle. Reference to the sketch will show that we have lettered three of the four sides X, Y, Z. These sides next claim our attention, for the children must measure the total length of these sides.

This may present a new problem—how to measure a curved line. The matter will obviously be discussed with them before the solution is provided. Measure the sides with a piece of cotton, or the edge of a piece of paper bent to fit the curve, and marked at the ends. The length (which will depend upon the amount of curve) having been measured, the next task is to build up the body of the chariot. The planning of this is seen in Fig. 1 B. Its total length equals the length of X, Y, Z, while its height is 2 in. The top edge is cut, and small tabs or flaps are added to the lower edge as shown. These flaps are bent inwards; the whole shape is rounded somewhat, and is finally stuck to the base as shown in Fig. 1 D. A $\frac{1}{2}$ in. strip of fairly stout card is bent as shown in Fig. 1 C, and this is fitted with a splint of wood to form an axle, which is stuck with adhesive to the under side of the chariot base. The wheels are two cardboard discs of $\frac{3}{4}$ in. radius. These may be decorated with crayons or paint. If they wobble when fitted, fix one or two small discs on the axles to act as washers.

We must now trace, draw and cut out our two horses (Fig. 1 G). In colouring these, the bodies of the horses might be tinted in shades of brown, the decorations in yellow (to represent bronze) and bright red by way of contrast. Having fixed our horses side by side on to a cardboard lid, our next task is to construct harness. This consists of a long strip of card, one end of which is stuck under the chariot, to the other end is attached a flat cross-piece and two cardboard collars, all stuck together. The collars are slipped over the horses' heads. The chariot should be tinted in yellow and brown.

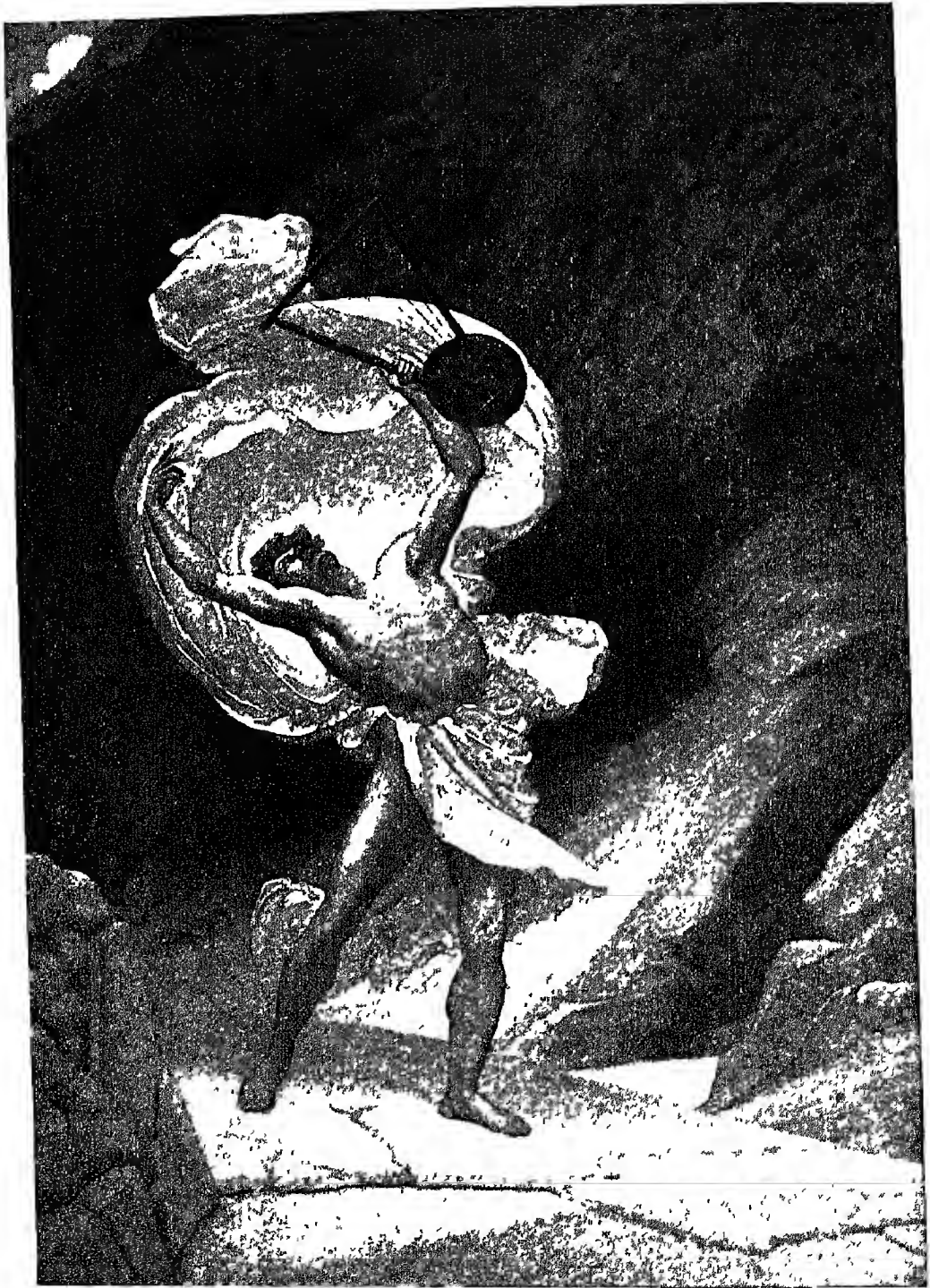


AN ASSYRIAN CHARIOT PROJECT—WITH CUT-OUT HORSE—CONSTRUCTED IN CARD

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THE TEACHING OF ENGLISH
IN THE
PRIMARY SCHOOL

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From the picture by Sir William Blake Richmond R A]

[Photo W F Mansell

ORPHEUS RETURNING FROM THE SHADES

GENERAL INTRODUCTION TO THE FOUR YEARS' COURSE

The English Lesson.—The study of English is bound up with every department of school life; this fact applies especially in the case of young children who are laying the foundations of their lifelong habits of speaking and writing. In the primary school, particularly, the teaching of English cannot be confined to certain lessons or times. The aim of the English lesson in itself should be to set the standard of language and to direct the progress of thought and self-expression. In his four years at the primary school the child should learn to speak with fluency and good articulation, he should acquire the skill to read and understand English prose and verse suited to his age, and he should be able to express his ideas in writing on simple and familiar subjects.

True knowledge of every kind has a practical application to everyday life, and this is particularly true of the study of English. It is important that from his earliest years the child should be led to regard language as a natural factor in his own life, and as a key to its secrets. Any language study, therefore, should have a direct bearing upon a subject which holds interest for the children and upon which they already possess some ideas. For this reason, modern methods of teaching have discarded the use of grammatical or linguistic exercises set apart from context, in favour of a more natural means of acquiring a command of language—namely, the use of prose and verse as the basis of all language study.

In the field of practical work in the English lesson there are three departments to be borne in mind: training in speech, training in reading and training in writing. These three aspects cannot be dissociated, they

lead naturally one out of the other, and over-emphasis of any one impairs the freedom and balance of the child's outlook upon literature.

Speech training.—The first step in language study is the ability to express ideas in words which are both intelligible and pleasing to the ear. The oral work in the infant school lays the foundation of speech training, which is developed throughout the years at the primary school.

The vexed question of "standard English" demands on the part of the teacher a balanced attitude to the varying factors of accent and dialect. The general aim should be an effortless voice production, clear and natural utterance, and, as far as possible, musical vowels. It is not desirable that the children should learn to speak one language at school and another at home, but rather that their own natural speech should be mellowed and purified. The guiding factor is the language of the teacher himself, for correct speaking can only be assimilated, not learnt by rule of thumb.

The practice of reading aloud to the class is one of great importance and one which is often neglected. The passage should first be prepared by the teacher, and the performance should be his highest attainment in pronunciation, intonation and phrasing. Such a reading may be followed by oral work by the class. Leading questions which draw out the main features of the story should be put to the children, thereby stimulating their interest and observation. Finally, certain members of the class may be asked to retell the story in parts, each child taking up the thread of the tale where the last speaker finished. A high standard of utterance and expression should be kept

throughout such conversations. It is not advisable frequently to interrupt a child's answer to correct his pronunciation; a useful practice is to pick out words which give special difficulty during the lesson and to spend a few minutes in linguistic drill based on this list

The practice of reading aloud or repeating from memory passages of good English prose and verse is of great assistance to the child. The traditional reading lesson, however, in which one child reads aloud while the others follow the words in their books, has lost its important place on the timetable, on account of the boredom and waste of time for the majority of the class. Practice in reading aloud from standard literature may be given during lessons on all subjects, and should always be associated with the motive of giving pleasure and interest to others. The reader should be given opportunity to study his passage before delivering it, for it is impossible to read well without complete understanding; mere reading aloud without study or effective criticism is of little use.

The use of simple plays, both impromptu and from a textbook, furnishes a means of speech training which is specially delightful to the child. In the performance of plays a high standard of utterance should be exacted, so that they form an important exercise in the development of correct speaking.

The choice of prose.—In selecting material for both oral and silent reading "the literary value of the work should have first consideration" (Hadow Report, *The Primary School*, 1931), together with its suitability to the age of the child. To appreciate literature, the child must have an interest in the subject and an understanding of the language of the writer. Both these factors are necessary to enable him to share with the writer that vivid sympathy which is the touchstone of true reading.

As well as the literary value of the work, therefore, the following considerations should

be borne in mind. The vocabulary, broadly speaking, should be within the compass of a child, and the language childlike and unmannered, without the flavour of condescension. Above all, the subject matter must be of interest to the child, free from abstract thoughts, full of life and movement. The appeal to the imagination is potent with almost every child, but there are comparatively few children to whom the realm of pure fancy is the most attractive; it is the subtle blending of fancy with reality that makes the ideal child literature. Children should therefore be provided with stories ranging from pure fancy to stories of actual life and natural history.

Such a range of thought can be attained only by a choice of material from a range of authors, whose varying styles in themselves possess an educative value. Many of the old favourites are admirably suited to children, for example *Æsop's Fables*, *Lessing's Fables*, *Grimm's Fairy Tales*, *Perrault's Fairy Tales*, and the simpler stories of Hans Andersen. Other delightful writers for children include:—Flora Annie Steel, Mrs Ewing, George MacDonald, Mrs. Craik, Maria Edgeworth, Mrs Sherwood, Mrs. Gatty, Mrs. Molesworth, Charles Kingsley, Nathaniel Hawthorne and E. Nesbit. Among the most modern writers there are many excellent authors of children's books:—Kenneth Grahame, A. A. Milne, Rudyard Kipling, Padraic Colum, Rose Fyleman, Hugh Lofting and others.

The study of prose.—It is necessary to keep some check on the value of silent reading, and to encourage deeper thinking and comprehension, without making the task of reading wearisome or laborious. Oral discussion after the period of silent reading assists the child to formulate his ideas and to master the general substance of what he has been reading. Difficult words and phrases brought up by the children may be explained orally or by means of illustrations on the blackboard. Certain phrases, for example "exchanged

glances," "put up with the consequences," present difficulties to children and are often meaningless to them. Words or phrases of action may be dramatised by the children one to another.

Intensive study.—For the lines on which to teach language from the study of a passage of prose, we cannot do better than quote the following extract, which is taken from the section on Language Study in the *Handbook of Suggestions for Teachers* issued by the Board, now the Ministry, of Education.

"With a view to training the children in ease and accuracy in the use of language the teacher should select particular passages, as a rule in prose and preferably from a book of extracts from well-known authors. A passage so selected should not be left until the children have extracted from it, as far as they can, all that it has to give. They should understand the meaning of and use of each word that it contains and construct sentences, using some of the less familiar words appropriately. They should grasp the significance of each phrase and sentence and perceive how the ideas are related. They should recognise the general idea of the whole and summarise it in their own words. They should apply to it such grammatical knowledge as they possess, analysing it if they can into its component clauses. Finally, the whole passage should be read aloud distinctly by some of the pupils with all the rightness of phrasing, pronunciation and intonation of which they are capable.

"Practice of this kind is of the greatest importance, but it is at present far too uncommon . . . At first progress will be slow and a few sentences may occupy a whole lesson. But the value of the work will depend on its quality rather than on its quantity.

"The selection by a child of the right explanation of a phrase, whether the explanation is suggested by the context or requires recourse to the dictionary, demands from

him close attention and thought. By the attempt to substitute one word or phrase for another, and by the teacher's criticism of his attempt, he can gain some elementary conception of what is meant by precision in language, of the care, on the one hand, with which a great writer uses words, and, on the other, of the vagueness of thought and disregard of shades of meaning which mark ordinary language as used by himself and others. Very careful preparation by the teacher is essential if exercises of this type are to be fully successful.

"In addition to the comprehensive exercise just described, the teacher should constantly be devising various linguistic exercises on portions of the text, to be worked by groups of scholars or the class as a whole, orally or in writing. Such exercises should involve the scrutiny of the vocabulary, form and structure of particular passages, and their object should be to render language a familiar medium, easily manipulated. It is good oral practice to conjure, as it were, with the verbal materials of a piece of English, varying the subject and object, converting short sentences into long, subordinate into principal, concrete into abstract, active into passive, direct speech into indirect and vice versa; or replacing particular words and phrases by others. For all such language experiments the material should be found in the books the children are reading rather than specially composed or taken from manuals of English. The children will thus learn while still at school to rely for progress in English on the only means which will be open to them afterwards, viz., the observation and assimilation of the language and style of what they read."

Oral composition.—In the years at the primary school the oral side of composition is the more important. Every opportunity to develop a free expression of ideas should be given. The questions should be framed to demand full and thoughtful answers, a principle which applies to all forms of oral work, the practice of encouraging "snappy"

answers and "hands up" is much to be deprecated on the ground of promoting shallow and undisciplined thinking. Care should be taken that the oral work is so graded in difficulty that each child has a fair chance to take part. It is often advisable to take sections of a large class in oral work while the other children are engaged in written exercises. In connection with oral composition the natural dramatic instincts of a child should be fully utilised, by which is meant the individual's natural interpretation of certain ideas, not artificial or studied actions.

The basis of the oral composition may be a story, which has been previously read aloud by the teacher, or silently by every member of the class. Suggestions for oral work based on a story are given in the section *Speech training* in this Introduction. A familiar subject—for example, *Home Life*—may be chosen as the basis on which to build the conversation between teacher and pupils. Oral expression of a descriptive character should be encouraged, these descriptions may be of sounds, sights or experiences, or of a chosen picture. A picture which represents a scene in a story offers a wide field for oral study.

Grammar in the junior school is confined to the study of the behaviour of words in actual use; the teaching of grammar to young children is therefore inseparable from oral composition and word study. The exercise may begin with the use of gapped sentences, of which all the missing words should belong to one part of speech for each exercise. Practice may be given in this way in the use of nouns, pronouns, verbs, adjectives and adverbs. The use of indirect speech, division into subject and predicate, etc., afford material for further exercises on the fundamentals of grammar, while grammatical terms may be gradually introduced at the teacher's discretion.

Written composition.—Written composition should not be over-encouraged in young children, as the mechanical difficulty of

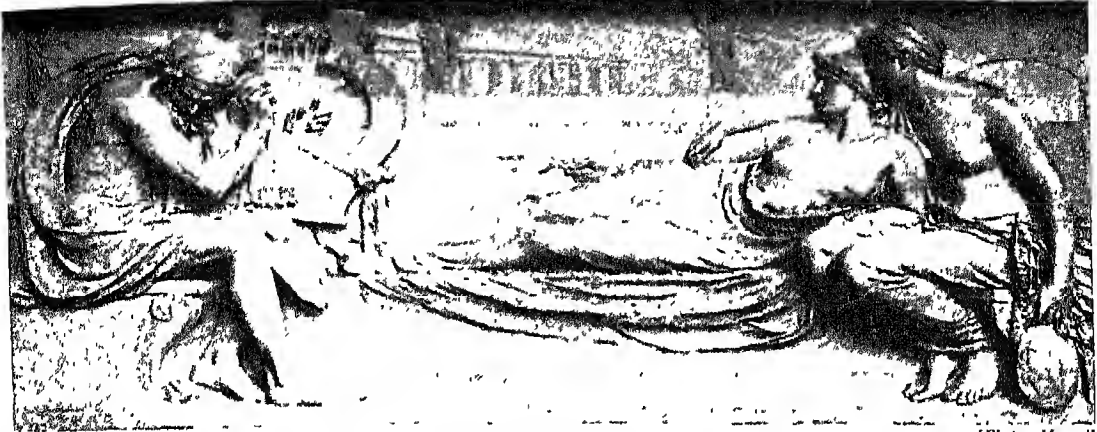
writing is a great handicap to them, and hinders the free flow of ideas. Practice in transcription and dictation should precede the work of written composition. From the start, the written work should take the form of short exercises drawn from the same source as the oral. The child should possess plenty of ideas upon a subject before composing a sentence about it. The exercises should consist of sentence making, until the children have sufficient command of language and writing to compose a short essay. Together with the essay should be taught the writing of simple letters on subjects which have a bearing upon the real life of the child.

Choice and study of poetry.—Nothing calls for greater taste and discrimination on the part of the teacher than the choice of poetry for young children. Over and above all other considerations, the material must be of literary merit and worthy of the name of poetry, time should never be spent on second-rate work. The qualities of lilt and rhythm appeal strongly to children; to quote again from the *Handbook of Suggestions for Teachers*—the reading and learning of English verse is "perhaps the most potent means of awakening a love for the beautiful in thought and language." Next to the literary value of the poem, both the leading idea contained in it and the style of the language must be considered. The Hadow Report, *The Primary School*, ably sets out the requirements of poetry for young children: "In the study of poetry, the important thing is that the poem as a whole, whether read by the children, or to the children, should have a meaning for them. This point is sometimes overlooked, and poems of most difficult content are chosen merely because their language appears delusively easy. Whether the poem is ancient or modern, it should be excellent of its kind . . . It should not be chosen merely because it touches a sentimental chord in the heart of a grown-up person."

The child should be encouraged to select

his favourite poems and memorise them, and to recite them with all his natural feeling and expression. His delivery of his chosen poems should represent his speech at its best. Poems may be studied, like prose, with the aid of various exercises to promote understanding, but care must be

taken that such exercises only increase the child's interest and enjoyment of the work. The value of poetry is rather to be felt and assimilated by young children, than to be formally studied, and the success of the poetry lesson depends primarily on the sympathetic attitude of the teacher.



By Dares

HOMER

[Photo Mansell]

THE FIRST YEAR'S COURSE

THE TEACHING OF LITERATURE

Scope of the Work.— Good literature is fundamental to the study of language, and all story work should be based on this principle. The material selected should be of recognised literary merit, and chosen from a variety of authors, both old and new. The stories should not be "written up" by one person, but they should preserve the varying styles of different authors, even in the simplest work. Though many of the old favourites are indispensable to child literature, a considerable body of fresh material should be included.

The exercises following the reading of the story should not be extraneous to the text, but should be framed to foster the interest and understanding of the child, and to provide for language study through the direct medium of the story. Six examples of story work treated on these lines are given in this section of *Teaching in Practice*, and each story is supplied with exercises designed to bring out its full value. All the types of exercises used, together with an explanation of the object and use of each, are given in the following pages, 136 to 138. They cover all the essential points to be considered in the study of prose.

1. Read and play.—e.g. from *Titty Mouse and Tatty Mouse*:

Play that you are a-gleaning.
Play that you are making a pudding
Play that you are hopping.
Play that you are sweeping

The aim of this exercise is to ensure a full understanding of the *actions* of the story, for thoughts of action make the first appeal to the child mind. The question should be read by the children themselves, either singly or as a class, and the answer given

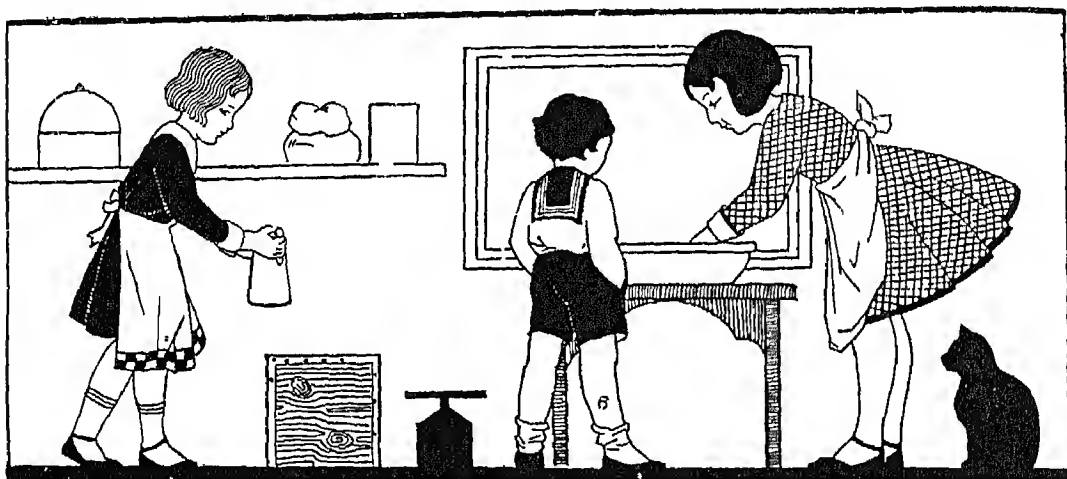
to explain a word in action to other children who do not know the word. Wherever possible, the teacher should elicit the action from the children themselves and not demonstrate herself.

Some of the questions in *Read and Play* demand an imitative sound, or an inflexion of the voice, e.g. from *Lucky and Unlucky*.

Make a churring noise.

Talk in a little whispering voice

2. Do you know?—e.g. from *Titty Mouse and Tatty Mouse*.



by the appropriate action. In the case of an unfamiliar word, if the teacher cannot elicit the correct action from any member of the class, she should explain the meaning of the word orally, and in some cases supplement her explanation by a drawing on the blackboard. Suitable sketches for use on the blackboard, to illustrate certain unfamiliar words which occur in the stories, are given in this book. In addition to their explanatory value, these exercises will be found invaluable in promoting the children's interest and in fostering their dramatic instincts. It is good and amusing training that where possible they should be allowed only to *play* and not to *speak*. Both thought and care are required of a child when he is called upon

What is the colour of a mouse?
Where would you look for an ear of corn?
What scalds you?

The aim of this exercise is to encourage the faculty of visualisation that brings a story to life, and to explain any difficult words or phrases.

3. Put together.—e.g. from *Titty Mouse and Tatty Mouse*:

The window	moulted all its gay feathers
The door	shed its green leaves.
The form	began to creak.
The bird	jarred
The broom	galloped round the house.
The walnut tree	began to sweep

This exercise is both a test of reading and a test of intelligence. It gives the slower child with a good memory an equal chance with the quick-witted child. Certain children may be called upon, or the questions put one by one to the class. The division in each sentence may separate the subject and predicate, as in the above exercise, or the object and predicate, as in the following example from *The Hop About Man* :

PUT THE CARELESS THINGS STRAIGHT FOR
WEE-WUN --

The door he washed quite clean
The wood he set on its hinges
The tables and chairs he pulled up by the score.
The platter and spoon he put in the woodshed.
The blue blow-aways he put straight

By these methods the child mind is prepared for the fundamentals of analysis.

4. Fill the gaps -- e.g. from *The Hop About Man* :

Wee-Wun was a little -- .
Wee-Wun saw lying upon the ground
two little -- of blue and silver
The garden of the Stit-about Wife is full
of golden -- .
In the spot where Wee-Wun had sown
the blue seed had sprung up a huge -- .

This exercise is a test of reading, combined with opportunities for word choosing. The children should supply the missing words as correctly as they can from memory, and the results should be compared with the complete sentences found in the text. The gaps in each exercise should stand for a particular part of speech, which may be given its grammatical name at the discretion of the teacher. In the above example the missing words are nouns. To emphasise the grammatical sense of the words the title may be adapted as follows.

Put in the describing words. -- e.g. from
Lucky and Unlucky

The Great Plane Tree stood in the park
like a -- giant

Under its great shadow -- grown-ups
had rested

"We're all going to the -- lands where
the sun shines all day"

5. Tell me. -- e.g. from *The Earthworm*

Name three things that worms eat

What do worms do in the winter?

What creatures are the enemies of a
worm?

Why did the worm venture forth only at
night?

This exercise is purely a test of reading
and comprehension

6. Marked passage : for intensive study. --
e.g. from *Wings or Tails*.

*But she had a kind heart, and not being
very hungry just then, she said, "Very well,"
and picking him up gently in her beak she
flew off with him to her home in a hollow
beech tree*

Who is *she*?

Who is *him*?

What might the Owl have done if she
had not had a kind heart? What might the
Owl have done if she had been very hungry?

What did she mean when she said, "*Very
well*"? Why are the words *Very well*
placed between lifted commas?

Which word tells you *how* she picked him
up? What word means the opposite of
gently?

Why should she choose a *hollow* beech
tree for her home?

Describe a *beech*. Describe a *beach*.

The principles on which this method of
study is based are fully set out in the General
Introduction to the Four Years' Course,
under the heading *Intensive Study*.

7. Make sentences telling. -- e.g. from
Foolish Mabel :

- (a) how Mabel met with an accident;
- (b) what Mabel was like after her accident;
- (c) what she had been like before her accident.

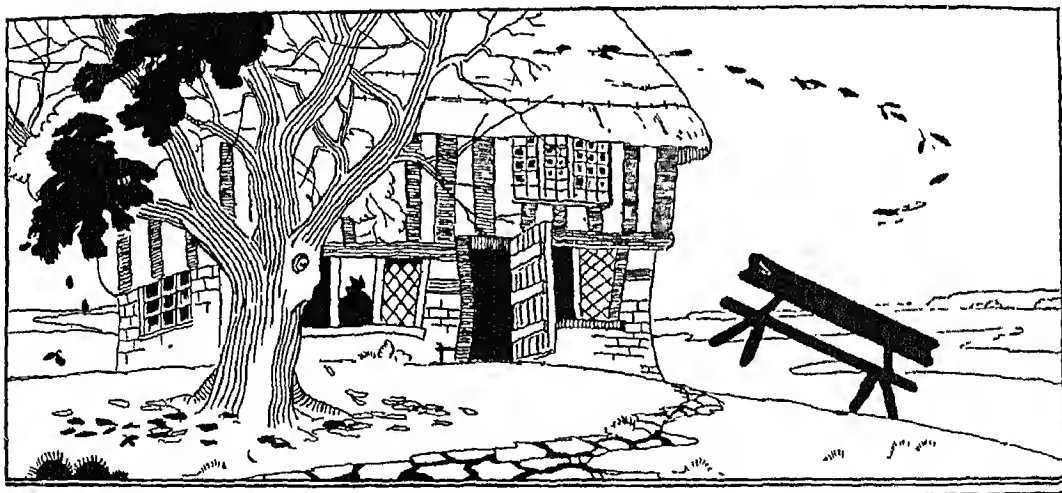
This exercise calls for original work in sentence making. The answers can be given orally or in writing according to the age and ability of the children. It is also a test of the children's knowledge of the whole story. Many more composition exercises of this character can, of course, be given at the teacher's discretion

8. Draw.—e.g. from *Wings or Tails* '

A star. A field-mouse. A branch of a tree. A tuft of grass

This is an additional exercise to promote the power of visualisation. It is not, however, always convenient to provide the children with drawing equipment during the English lesson, but if the drawing lesson itself is made to bear on the week's story, the study of English will be felt to extend beyond the limits of the English lesson, and language discovered to be a thing of universal application.

MODEL LESSONS



TITTY MOUSE AND TATTY MOUSE

TITTY MOUSE and Tatty Mouse lived in a house

Titty Mouse went a-gleaning and Tatty Mouse went a-gleaning

So they both went a-gleaning.

Titty Mouse gleaned an ear of corn, and Tatty Mouse gleaned an ear of corn

So they both gleaned an ear of corn

Titty Mouse made a pudding, and Tatty Mouse made a pudding

So they both made a pudding
And Tatty Mouse put her pudding into the pot to boil.

But when Titty went to put hers in, the pot tumbled over, and scalded her to death, and Tatty sat down and wept

Then the three-legged stool said, "Tatty, why do you weep?"

"Titty's dead," said Tatty, "and so I weep."

"Then," said the stool, "I'll hop," so the stool hopped

Then a broom in the corner of the room said, "Stool, why do you hop?"

"Oh!" said the stool, "Titty's dead, and Tatty weeps, and so I hop."

"Then," said the broom, "I'll sweep," so the broom began to sweep.

Then said the door, "Broom, why do you sweep?"

"Oh!" said the broom, "Titty's dead, and Tatty weeps, and the stool hops, and so I sweep."

"Then," said the door, "I'll jar," so the door jarred

Then the window said, "Door, why do you jar?"

"Oh!" said the door, "Titty's dead, and Tatty weeps, and the stool hops, and the broom sweeps, and so I jar."

"Then," said the window, "I'll creak," so the window creaked.

Now there was an old form outside the house, and when the window creaked, the form said, "Window, why do you creak?"

"Oh!" said the window, "Titty's dead, and Tatty weeps, and the stool hops, and the broom sweeps, the door jars, and so I creak!"

"Then," said the old form, "I'll gallop round the house." So the old form galloped round the house.

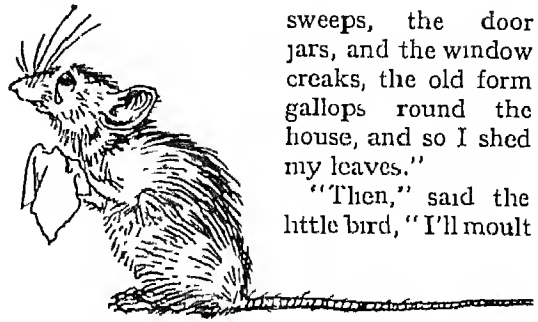
Now there was a fine large walnut tree growing by the cottage, and the tree said to the form, "Form, why do you gallop round the house?"

"Oh!" said the form, "Titty's dead, and Tatty weeps, and the stool hops, and the broom sweeps, the door jars, and the window creaks, and so I gallop round the house."

"Then," said the walnut tree, "I'll shed my leaves." So the walnut tree shed all its beautiful green leaves

Now there was a little bird perched on one of the boughs of the tree, and when all the leaves fell, it said, "Walnut tree, why do you shed your leaves?"

"Oh!" said the tree, "Titty's dead, and Tatty weeps, the stool hops, and the broom



sweeps, the door jars, and the window creaks, the old form gallops round the house, and so I shed my leaves."

"Then," said the little bird, "I'll moult

all my feathers," so he moulted all his gay feathers

Now there was a little girl walking below, carrying a jug of milk for her brothers' and sisters' suppers, and when she saw the poor little bird moult all its feathers, she said, "Little bird, why do you moult all your feathers?"

"Oh!" said the little bird, "Titty's dead, and Tatty weeps, the stool hops, and the broom sweeps, the door jars, and the window creaks, the old form gallops round the house, the walnut tree sheds its leaves, and so I moult all my feathers."

"Then," said the little girl, "I'll spill the milk." So she dropped the pitcher and spilt the milk.

Now there was an old man near by on the top of a ladder thatching a rick, and when he saw the little girl spill the milk, he said, "Little girl, what do you mean by spilling the milk? Your little brothers and sisters must go without their suppers."

Then said the little girl, "Titty's dead, and Tatty weeps, the stool hops, and the broom sweeps, the door jars, and the window creaks, the old form gallops round the house, the walnut tree sheds all its leaves, the little bird moults all its feathers, and so I spill the milk."

"Oh!" said the old man, "then I'll tumble off the ladder and break my neck."

So he tumbled off the ladder and broke his neck; and when the old man broke his neck, the great walnut tree fell down with a crash and upset the old form and house and the house falling knocked the window

out, and the window knocked the door down, and the door upset the broom, and the broom upset the stool, and poor little Tatty Mouse was buried beneath the runs

EXERCISES BASED ON THE TEXT

The plan and scope of these exercises are fully explained on pages 136-138

1. Read and play.—

Play that you are a-gleaning.
Play that you are making a pudding.
Play that you are hopping
Play that you are sweeping
Play that you are the form galloping
Play that you are carrying a jug of milk.
Play that you are burying something.

2. Do you know?—

What is the colour of a mouse?
Where would you look for an ear of corn?
What scalds you?
What is a form used for?
What is another name for a jug?
What is a rick made of?

3. Put together: selection of appropriate subject and predicate.—

The window	moulted all its gay feathers.
The door	shed its green leaves
The form	began to creak
The bird	jarred
The broom	galloped round the house
The walnut tree	began to sweep.

4. Marked passage: for intensive study
The questions on this passage cover the following points: (a) *grammar*—pronouns, adjectives, verbs, (b) *word study*—use of their and there, words of opposite meaning, (c) *punctuation*—question mark—

Now there was an old man near by on the top of a ladder thatching a rick, and when

he saw the little girl spill the milk, he said, "Little girl, what do you mean by spilling the milk?"

Look carefully at the words *there was*, spell the word *there*.

Which word tells you about the *man*?

What word means the opposite of *near*?

Which word tells you what the old man was doing?

Point to the thatch in the picture. What is the use of a thatch?

Who is meant by *he*?

Which word tells you about the *girl*?

Look for the mark? and say the question
Who asked the question?

"Your little brothers and sisters must go without their suppers"

Which word tells you that the *suppers* belonged to the brothers and sisters? Look carefully at the words *their suppers*, spell the word *their*. What other word have you found that sounds like *their*?

Put either *their* or *there* in the gaps in these sentences:

1. I know — is a mouse in our house.

2. Titty and Tatty took — ears of corn home

3. Now — was an old form outside the house.

4 Titty and Tatty put — puddings into the pot to boil

5. Make sentences telling—

(a) what happened to Titty Mouse;
(b) what the old form did; (c) what the bird did, (d) what the little girl did.

6. Draw.—

A three-legged stool A bird A ladder.
A pitcher

(For blackboard illustration of a Hay Rick see page 144)



HOW JACK WENT OUT TO SEEK HIS FORTUNE

ONCE upon a time there was a boy named Jack, who one morning started out to seek his fortune. He had not gone very far before he met a cat.

"Where are you going, Jack?" said the cat.

"I am going to seek my fortune."

"May I go with you?"

"Yes," said Jack, "the more the merrier."

So on they went, Jack and the cat. Jiggelty-jolt, jiggelty-jolt, jiggelty-jolt!

They went a little farther and they met a dog.

"Where are you going, Jack?" said the dog.

"I am going to seek my fortune."

"May I go with you?"

"Yes," said Jack, "the more the merrier."

So on they went, Jack, the cat, and the dog! Jiggelty-jolt, jiggelty-jolt, jiggelty-jolt!

They went a little farther and they met a goat.

"Where are you going, Jack?" said the goat.

"I am going to seek my fortune."

"May I go with you?"

"Yes," said Jack, "the more the merrier."

So on they went, Jack, the cat, the dog, and the goat. Jiggelty-jolt, jiggelty-jolt, jiggelty-jolt!

They went a little farther and they met a bull.

"Where are you going, Jack?" said the bull.

"I am going to seek my fortune."

"May I go with you?"

"Yes," said Jack, "the more the merrier."

So on they went, Jack, the cat, the dog, the goat, and the bull. Jiggelty-jolt, jiggelty-jolt, jiggelty-jolt!

They went a little farther and they met a cock.

"Where are you going, Jack?" said the cock.

"I am going to seek my fortune."

"May I go with you?"

"Yes," said Jack, "the more the merrier."

So on they went, Jack, the cat, the dog, the goat, the bull, and the cock. Jiggelty-jolt, jiggelty-jolt, jiggelty-jolt!

And they went on jiggelty-jolting till it was almost dark, and it was time to think of some place where they could spend the night. Now, after a time, they came in

sight of a house, and Jack told his companions to keep still while he went up and looked in through the window to see if all were safe. And what did he see through the window but a band of robbers seated at a table counting over great bags of gold. "That gold shall be mine," said Jack to himself. "I have found my fortune already."

Then he went back and told his companions to wait till he gave the word, and then to make all the noise they possibly could, each in his own fashion. So when they were all ready Jack gave the word, and the cat mewed, and the dog barked, and the goat bleated, and the bull bellowed, and the cock crowed, and all together they made such a terrific hubbub that the

he came back in a great fright and told them a fearsome tale!

"I went back to the house," said he, "and went in and tried to sit down in the rocking chair, and there was an old woman knitting there, and she—oh, my!—stuck her knitting-needles into me."

(That was the cat, you know)

"Then I went to the table to look after the money, but there was a shoemaker under the table, and my! how he stuck his awl into me!"

(That was the dog, you know)

"So I started to go upstairs, but there was a man up there threshing, and goodness! how he knocked me down with the flail!"

(That was the goat, you know)



robbers jumped up in a fright and ran away, leaving their gold on the table. So, after a good laugh, Jack and his companions went in and took possession of the house and the gold.

Now Jack was a wise boy, and he knew that the robbers would come back in the dead of the night to get their gold, and so when it was time to go to bed, he put the cat in the rocking chair, and he put the dog under the table, and he put the goat upstairs, and he put the bull in the cellar, and bade the cock fly up on to the roof.

Then he went to bed.

Now sure enough, in the dead of the night, the robbers sent one man back to the house to look after their money. But before long

"Then I started to go down to the cellar, but—oh dear me!—there was a man down there chopping wood, and he knocked me up and he knocked me down terribly with his axe."

(That was the bull, you know.)

"But I should not have minded that if it had not been for a noisy little fellow on the top of the house by the kitchen chimney, who kept calling out 'Cook him in a stew! Cook him in a stew! Cook him in a stew!'"

(And that, of course, was the cock-a-doodle-doo)

Then the robbers agreed that they would rather lose their gold than meet with such a fate, so they made off, and Jack next morning went gaily home with his booty.

And each of the animals carried a portion of it. The cat hung a bag on its tail (a cat when it walks always carries its tail stiff), the dog on his collar, the goat and the bull on their horns, but Jack made the rooster carry a golden guinea in its beak to prevent it from calling all the time.

"Cock-a-doodle-doo,
Cook him in a stew!"

EXERCISES BASED ON THE TEXT

The plan and scope of these exercises are fully explained on pages 136-138

1. Read and play.—

Make a noise like a cat
Make a noise like a hen
Make a noise like a dog
Play that you are knitting a sock
Play that you are making a shoe
Play that you are threshing wheat.
Play that you are chopping wood
Five of you play at making a hubbub.
Say the words that the cock called out

2. Do you know?—

In what way is a goat like a bull?
What is the colour of gold?
What word do you give to start a race?
How does a rocking chair rock?
Where is the cellar of a house?
What are knitting-needles made of?
What is an awl used for?

3. Tell me.—

What did the robber feel that was like knitting-needles sticking into him?

What did the robber feel that was like a shoemaker's awl?

What did the robber feel that was like a man threshing with a flail?

What did the robber feel that was like a man knocking him down with an axe?

4. Put together: selection of appropriate subject and predicate —

The cat	bleated
The dog	bellowed
The goat	crowed
The bull	mewed
The cock	barked

5. Marked passage: for intensive study
The questions on this passage cover the following points: (a) *grammar*—pronouns, adjectives; (b) *word study*—meanings of words, words of opposite meaning, synonyms, (c) *punctuation*—capital letters, inverted commas —

Then the robbers agreed that they would rather lose their gold than meet with such a fate; so they made off, and Jack next morning went gaily home with his booty

Why is *Then* written with a capital T?

Why is *Jack* written with a capital J?

Which word tells you that the robbers all thought alike?

What word means the opposite of *lose*?

Which word tells you that the *gold* belonged to the robbers?

Who is meant by *they*?

Explain *they made off*. Why did they make off?

What was Jack's *booty*?

Why did Jack go *gaily* home? Think of another word for *gaily*.

Why do you think Jack waited till the next morning to go home?

Which other word is used to mean *Jack*?

And each of the animals carried a portion of it

Name the animals

What is meant by *it*?

What is a *portion*?

The cat hung a bag on its tail (a cat when it walks always carries its tail stiff), the dog on his collar, the goat and the bull on their horns, but Jack made the cock carry a golden guinea in its beak to prevent it from calling all the time:

"Cock-a-doodle-doo,
Cook him in a stew!"

Which word tells you that the *tail* belonged to the cat ?

Which other word means the *cat* ?

Does a dog always carry its tail stiff when it walks ?

Which word tells you that the *collar* belonged to the dog ? Why does a dog wear a collar ? What other animal wears a collar ?

How would you hang a bag on a donkey ?

Which word tells you that the *horns* belonged to the goat and the bull ? Why is it wrong to write *there horns* ?

Do we use golden guineas to-day ?

Why would a guinea in its beak prevent the cock from calling out ?

Think of another word for *prevent*.

Think of another word for *rooster*

Why do you think Jack wanted the cock to be quiet ?

Why are the lifted commas " " used ?

What is a *stew* ?

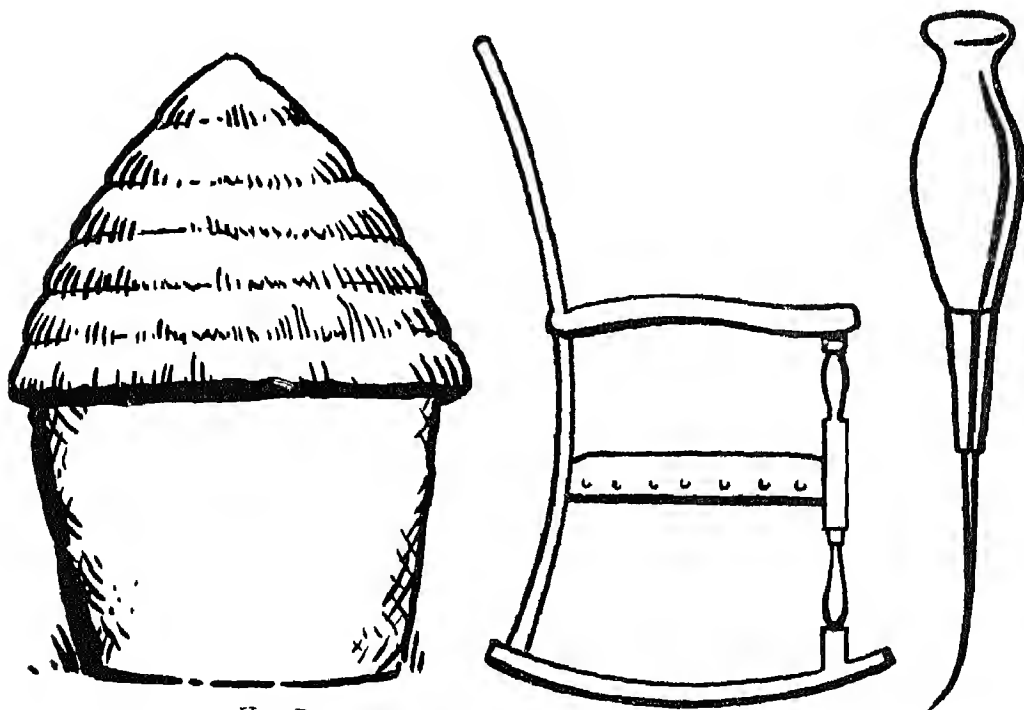
6. Make sentences telling—

(a) why Jack started out; (b) what Jack did when they first came to the house, (c) how Jack frightened the robbers; (d) why the robbers sent one man back to the house; (e) why the rest of the robbers did not come back

7. Draw.—

A cat A cock A bag of gold An axe
A chimney

SKETCHES FOR THE BLACKBOARD



HAY RICK—SEE PAGE 139

ROCKING CHAIR AND COBBLER'S AWL—SEE PAGE 142



FOOLISH MABEL

MABEL wasn't a little girl. She was a nice little motor-car—dark-grey with bits of shining metal trimming here and there and a neat bonnet. (They *do* have bonnets, you know.)

She went very nicely indeed, and her owner was very proud of her "Mabel's splendid," he used to say "She really runs by herself, I don't have to do anything."

And Mabel heard him say this so often that in time she began to believe that it was indeed true, and that she was quite able to do everything by herself. One day her owner had gone into a house to see some friends. There was a tiny slope in the road where Mabel stood, and no sooner was he inside than she thought she would go for a little run alone. She started off very gently "Ah," she said to herself, "I can do it beautifully. It is quite true, I need no one to help me." She went a little faster. She felt very proud, and was only sorry that there was no one to see her, for it was a very quiet street.

Faster, faster—she began to feel a little breathless. "I am going too quickly," she puffed. "I must slow down." But she found that this was not so easily done, she went faster than ever. The houses whirled past her, everything was a bright jumble.

The road made a sharp turn at the bottom and there was a big iron gate facing her.

"You can't come in here," shouted the gate, rattling all its bars excitedly. "This is private." But Mabel couldn't even hear. She dashed into the gate and crashed right through, and then collapsed in the drive. When she came to herself her owner was standing over her. "Oh, Mabel," he said, "I should have thought you'd have known better."

Mabel gave a sad little rattle and shed a few petrol tears. She was a pathetic sight, battered and bruised and broken, and oh, so different from her former smart self.

She had to spend a month at a garage-hospital, and she was never *quite* the same after.

But she had learnt her lesson. She never tried to run by herself again.

EXERCISES BASED ON THE TEXT

The plan and scope of these exercises are fully explained on pages 136-138

1. Read and play.—

Play that you are a motor-car puffing along.

Make a rattling noise on the desk with a ruler.

Play at collapsing on the floor.

2. Do you know?—

Where is a motor-car's bonnet?

What is under the bonnet?

When do houses seem to whirl past?

Where is there a hospital for people?

Where is there a garage-hospital?

3. Put together: selection of appropriate subject and predicate

Mabel's owner	gave a sad little rattle
The road	whirled past her
Mabel	was very proud of her
The houses	made a sharp turn at the bottom

4. Put in the how-words: selection by memory of adverbs used in the story, where the complete sentences may be found —

She started off very —.

"Ah," she said to herself, "I can do it —"

She went a little —

"I am going too —," she puffed "I must slow down." But she found this was not so — done

"You can't come in here," shouted the gate, rattling all its bars —.

5. Tell me.—

What was Mabel?

When her owner said, "Mabel really runs by herself," did he mean exactly what he said?

Why did Mabel run away?

Why could not Mabel stop?

Look at the picture and think of a name for Mabel's owner

Think of a name for the house with the iron gate

6. Marked passage: for intensive study
The questions on this passage cover the following points: (a) grammar—adjectives, use of *different from*, (b) word study—mean-

ings of words, words of opposite meaning, synonyms.—

Mabel gave a sad little rattle and shed a few petrol tears

Does a motor-car usually rattle? Why did Mabel rattle? Which words tell you more about the *rattle*?

Think of another word for *shed*

Why were they *petrol* tears?

What word means the opposite of *sad*?

What word means the opposite of *few*?

She was a pathetic sight, battered and bruised and broken, and oh, so different from her former smart self.

Which words tell you about Mabel?

What does *pathetic sight* mean?

Finish these sentences. 1. Laughing is different from —. 2. Heat is different from —.

What other things do you know that look *smart*?

Who is meant by *self*?

She had to spend a month at a garage-hospital, and she was never quite the same after

Why is this motor-car called *she*?

Why do people go to a hospital? Why did Mabel go to a garage-hospital? Why did Mabel have to stay such a long time at the garage-hospital?

Think of another word for *spend*

After what happening was Mabel never quite the same?

7. Make sentences telling—

- (a) how Mabel met with an accident;
- (b) what Mabel was like after her accident,
- (c) what she had been like before her accident.

8. Draw.—

The bonnet of a motor-car A picture of a road with a sharp turn A notice board with the word PRIVATE on it A gate.

(For blackboard illustrations of a Radiator of a Motor-Car and a Gate see page 149)



HANS THE SHEPHERD BOY

HANS was a little shepherd boy who lived in Germany. One day he was keeping his sheep near a great wood when a hunter rode up to him.

"How far is it to the nearest village, my boy?" asked the hunter.

"It is six miles, sir," said Hans. "But the road is only a sheep-track. You might easily miss your way."

"My boy," said the hunter, "if you will show me the way, I will pay you well."

Hans shook his head. "I cannot leave the sheep, sir," he said. "They would stray into the wood, and the wolves might kill them."

"But if one or two sheep are eaten by the wolves, I will pay you for them. I will give you more than you can earn in a year."

"Sir, I cannot go," said Hans. "These sheep are my master's. If they are lost, I should be to blame."

"If you cannot show me the way, will you get me a guide? I will take care of your sheep while you are gone."

"No," said Hans, "I cannot do that. The sheep do not know your voice—and—" Then he stopped.

"Can't you trust me?" asked the hunter.

"No," said Hans. "You have tried to make me break my word to my master. How do I know that you would keep your word?"

The hunter laughed. "You are right," he said. "I wish I could trust my servants as your master can trust you. Show me the path. I will try to get to the village alone."

Just then several men rode out of the wood. They shouted for joy. "Oh, sir!" cried one, "we thought you were lost."

Then Hans learned to his great surprise that the hunter was a Prince. He was afraid that the great man would be angry with him. But the Prince smiled and spoke in praise of him.

A few days later a servant came from the Prince and took Hans to the palace.

"Hans," said the Prince, "I want you to leave your sheep to come to serve me. I know you are a boy whom I can trust."

Hans was very happy over his good fortune "If my master can find another boy to take my place, then I will come to serve you," said he.

So Hans went back and tended the sheep until his master found another boy. After that he served the Prince many years.



EXERCISES BASED ON THE TEXT

The plan and scope of these exercises are fully explained on pages 136-138.

1. Do you know?—

What is wrong with these words: germany, france, england?

Where do sheep feed?

What has a shepherd to do?

What is a sheep-track?

What does a hunter do?

Where do wolves live?

What do wolves eat?

2. Fill the gaps: selection by memory of nouns used in the story, where the complete sentences may be found.—

Hans was a little shepherd boy who lived in —.

One day he was keeping his sheep near a great —.

"No," said Hans "You have tried to make me break my word to my —."

Then Hans learned to his great surprise that the hunter was a —.

A few days later a servant came from the Prince and took Hans to the —.

3. Put right: a test of understanding of the story.—

Hans was minding his sheep in a great wood

The hunter came from the village

Hans was ready to leave his sheep

Hans trusted the hunter

The Prince was angry with Hans.

Hans left his old master at once

4. Marked passage:

for intensive study

The questions on this

passage cover the

following points: (a)

grammar — pronouns;

(b) word study—mean-

ings of words, words

of opposite meaning, synonyms; (c) *punctuation*—capital letters, inverted commas, exclamation mark —

Just then several men rode out of the wood.

What does *just then* mean?

Think of another word which means *several*. What other word means the same as *several*?

What animals do you think the men rode?

Why had they been in the wood?

What word means the opposite of *out of*?

What name is given to a very large wood?

They shouted for joy.

Who is meant by *they*?

What do you say when you shout for joy?

"Oh, sir!" cried one, "*we thought you were lost.*"

Look for the mark! and say why it is used in that place.

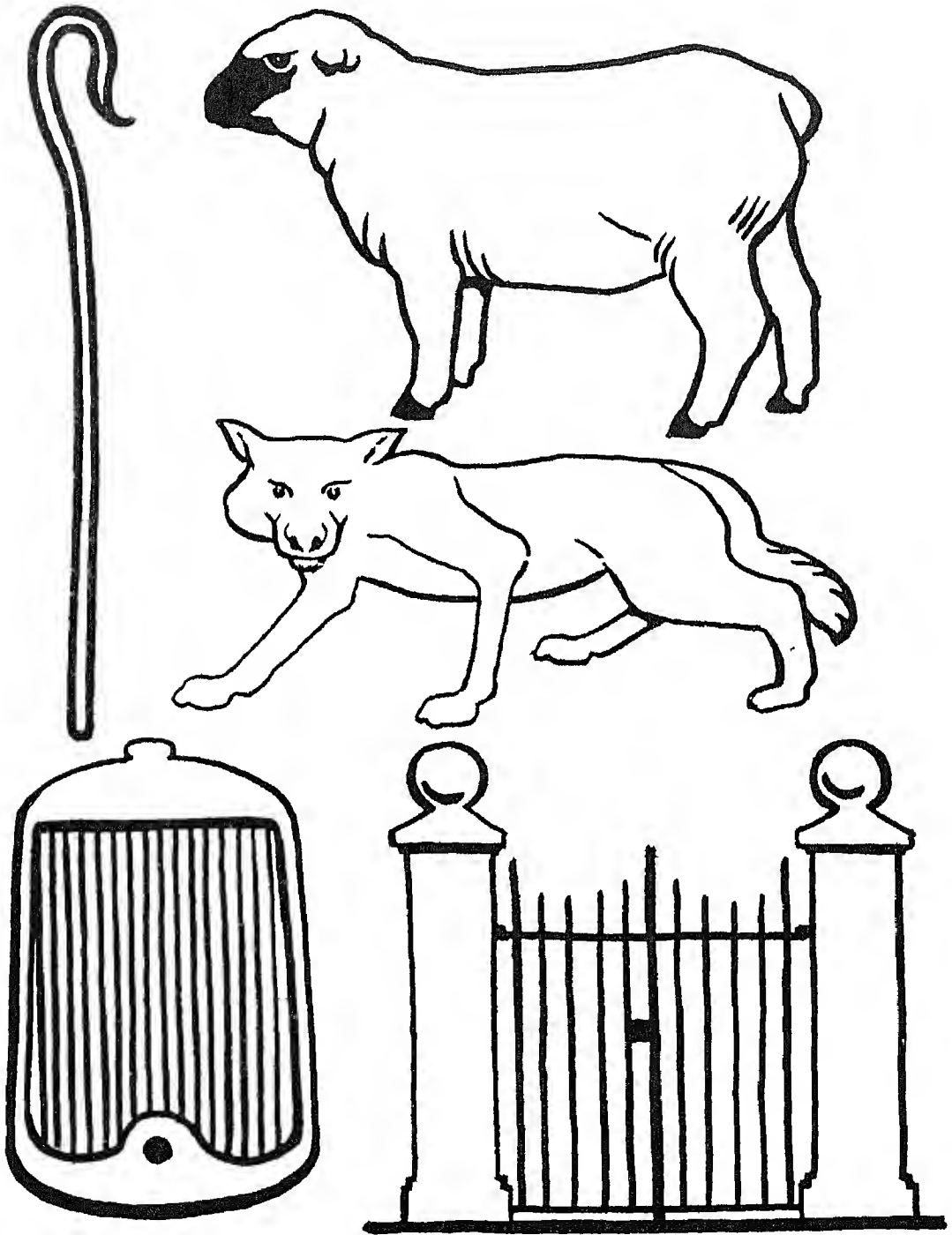
Who is meant by *one*?

Why did he call the Prince *sir*?

Who is meant by *we*? Who is meant by *you*?

Were they joyful because they thought the hunter was lost? What word means the opposite of *lost*?

SKETCHES FOR THE BLACKBOARD



SHEEP, CROOK, WOLF—SEE PAGE 147
RADIATOR OF MOTOR-CAR, GATE—SEE PAGE 145

Think of another word for *cried*

Where are the commas " used? Where are the commas " used?

Then Hans learned to his great surprise that the hunter was a Prince

How do you think Hans learned this?

Do you think Hans would have behaved differently if he had known that the hunter was a Prince?

What do you do when you are surprised?

Say what is wrong with this word—*hans*; say why it is wrong.

He was afraid that the great man would be angry with him

Who is meant by the *great man*? Does *great man* mean that the Prince was a giant?

Why did Hans think that he might be angry? What might the Prince have done to Hans if he had been angry? What word means the opposite of *angry*?

But the Prince smiled and spoke in praise of him.

Why did the Prince praise him?

Why did the Prince smile?

Who is meant by *him*?

Make sentences telling—

(a) who Hans was and what he was doing, (b) what the hunter wanted to know; (c) why Hans would not leave his sheep, (d) what the Prince said when he praised Hans

(For illustrations of Sheep, Wolf and Crook see page 149)



WINGS OR TAILS

ONCE, ever so long ago, about the time of Adam and Eve, a great Brown Owl sat upon the branch of an oak tree and hooted at the moon. Yes, the same moon as ours. And the same stars too were twinkling in the sky.

She heard a rustle in the long grass under the tree, and swooping down pounced upon a Field-mouse swinging from the top of a thistle by his long, long tail.

The Brown Owl opened her beak to swallow him, but the little Field-mouse

cried out piteously, "Oh, please do not eat me "

"Why not?" asked the Brown Owl, rolling her eyes round and round

"Because I'm so little," replied the Field-mouse.

"Little and tender," chuckled the Brown Owl, "I must eat you "

"Please, please don't," pleaded the Field-mouse "If you will let me off I will come with you and be your servant "

The great Brown Owl laughed. But she had a kind heart, and not being very hungry just then, she said, "Very well," and picking him up gently in her beak she flew off with him to her home in a hollow beech tree.

They lived together for some time, and the Field-mouse kept the home tidy

At last, one evening, the Owl, who was now very fond of the Field-mouse, said, "It's a pity you can't fly If only you could you might come with me at night over the tree-tops and far away."

"Oh," said the Field mouse, "how I wish I could fly!"

"Do you wish it with all your heart?" asked the Owl.

"Yes, yes, with all my heart," replied the Field-mouse.

"What would you give to have wings?" asked the Owl

"Anything in the world," replied the Field-mouse

"Would you give your beautiful tail?" asked the Owl

"Very gladly," replied the Field-mouse

"Very well, then," answered the Owl. "Now go to sleep "

And when the Field-mouse slept the great Brown Owl took his beautiful tail and with her magic she made of it a pair of wonderful wings, and fastened them to his shoulders

And when he awoke she said to him, "Come along, Flitter-mouse." And off they flew together over the tree-tops and far away to see all the wondrous things under the moon.

And often enough to this very day you will find an Owl and a Flitter-mouse (or bat) sleeping together in the same old barn

EXERCISES BASED ON THE TEXT

The plan and scope of these exercises are fully explained on pages 136-138

1. Read and play.—

Make a hooting noise.

Make a rustling noise

Make a chuckling noise.

Play that you are pouncing on a little mouse

Say *piteously*, "Oh, please do not eat me "

Roll your eyes round and round

Pick up something *gently*.

2. Do you know?—

When do owls wake up?

What are the names of some of the creatures that owls eat?

What is the colour of a thistle?

Which has the longer tail, the house-mouse or the field-mouse?

What is the colour of a bat?

When do bats fly about?

3. Put in the where-words; selection by memory of adverbs used in the story, where the complete sentences may be found —

A great Brown Owl sat — — the branch of an oak tree

She heard a rustle in the long grass — — the tree

They flew together — — the tree tops and far away

You will find an Owl and a Flitter-mouse sleeping together — — the same old barn.

4. Put together; selection of appropriate subject and predicate —

A great Brown Owl	swing from the top of a thistle by his long, long tail
The stars	will find an Owl and a Flitter-mouse sleeping together in the same old barn.
The Field-mouse	hooted at the moon
You	were twinkling in the sky.

5. Marked passage; for intensive study. The questions on this passage cover the following points (a) *grammar*—pronouns, adjectives, adverbs; (b) *word study*—meanings of words, words of opposite meaning, emphasis, (c) *punctuation*—inverted commas, apostrophe —

"Little and tender," chuckled the Brown Owl, "I must eat you"

What did the Brown Owl mean by "Little and tender"? What word means the opposite of *little*? What word means the opposite of *tender*?

Why should the Owl chuckle?

Which other word is used to mean *Brown Owl*?

Who is meant by *you*?

Why are the lifted commas " " used? What did the Brown Owl say?

"Please, please don't," pleaded the Field-mouse

Say *don't* in full

Put in the two words which are understood in this sentence: "Please, please don't — —"

Think of another word for *pleaded*

Why did the Field-mouse say *please* twice?

"If you will let me off I will come with you and be your servant"

Who is meant by *you*?

Who is meant by *I*?

Which word tells you whose servant the mouse would be?

What does *let me off* mean?

The great Brown Owl laughed.

Which word tells you about the Brown

Owl? What word means the opposite of *great*?

Why do you think the Owl laughed?

But she had a kind heart, and not being very hungry just then, she said, "Very well," and picking him up gently in her beak she flew off with him to her home in a hollow beech tree

Who is *she*?

Who is *him*?

What might the Owl have done if she had not had a kind heart?

What might the Owl have done if she had been very hungry?

What did she mean when she said, "Very well"? Why are the words *Very well* placed between lifted commas?

Which word tells you *how* she picked him up? What word means the opposite of *gently*?

Why should she choose a *hollow* beech tree for her home?

Describe a *beech*.

Describe a *beach*

6. Make sentences telling—

(a) where the Owl lived, (b) what the Mouse was doing when the Owl first saw him; (c) how the Owl made wings for the Field-mouse; (d) where the Owl and the Bat often sleep together.

7. Draw.—

A star. A field-mouse. A branch of a tree A tuft of grass

(For blackboard illustrations of Thistle, Bat and Owl see page 155)



LUCKY AND UNLUCKY

ALL through the long hot days of summer the Great Plane Tree had stood in the park like a green-robed giant.

Birds had perched upon its branches to rest, tree sparrows had built their nests in the topmost forks, and in the cool dawns had chirruped to the smiling sun.

Children had played beneath it, and under its great shadow tired grown-ups had rested from the heat of the noisy streets.

But now autumn was come with its cool nights and shorter days.

Overhead, day by day, the Great Plane Tree could hear the beating of the wings of thousands of birds. Sometimes they flew in such great flocks that their shadow swept over the park like the passing of a cloud.

And then one morning a dozen Lapwings and about twenty Starlings came fluttering down upon the Great Plane Tree.

"Thank goodness for a little rest," they twittered breathlessly. "But we can't stop long."

"Why not, indeed?" rumbled the Great Plane Tree. "Why all this hurry, and where are you off to?"

"Going south! going south!" twittered the Lapwings and the Starlings.

"Bless us all, whatever for?" cried the Great Plane Tree.

"Why, to look for the Sun," they answered.

"Sun!" laughed the Great Plane Tree. "Sun! why there he is overhead."

"Oh, yes, we know all about *that*," giggled the very littlest of the Starlings, "but he won't be there for long. We're all going to the warm lands where he shines all day. Why don't you come with us?"

At this the Great Plane Tree gave such a thundery laugh that the Lapwings and the Starlings flew off in alarm.

"A fine sight I should look flying through the air," chuckled the Great Plane Tree.

But all the leaves of the Plane Tree cried out in their little whispering voices, "Oh, please let us go with the birds."

"Nonsense, my dears, you stay with me," said the Great Plane Tree.

But they pleaded so hard that at last he said, "Very well, I'll ask the Wind to help."

So the Great Plane Tree shook himself, and the Wind blew ever so hard, and up into the air flew all the leaves.

But alas! they did not follow the birds.

but came tumbling down to the ground, and under the Great Plane Tree you may see them lying every year when summer has passed and chill autumn is come

EXERCISES BASED ON THE STORY

The plan and scope of these exercises are fully explained on pages 136-138

1. Read and play.—

Make a chirruping noise
Make a twittering noise
Make a rumbling noise
Give a thundery laugh
Talk in a little whispering voice

2. Do you know?—

What do we mean when we say that autumn days are shorter than summer days?

How many is a dozen?

Why do birds fly south at the end of the summer?

Do all trees shed their leaves in autumn?
Where do the leaves go?

3. Put in the describing words: selection of appropriate adjectives, which may be compared with those used in the complete sentences found in the story.—

The Great Plane Tree stood in the park like a — giant.

Under its great shadow — grown-ups had rested.

"We're all going to the — lands where the sun shines all day."

The leaves of the Plane Tree cried out in their little — voices

You may see them lying every year when summer has passed and — autumn is come.

4. Marked passage: for intensive study. The questions on this passage cover the following points: (a) *grammar*—pronouns, adjectives; (b) *word study*—meanings of words, words of opposite meaning, synonyms —

All through the long hot days of summer the Great Plane Tree had stood like a green-robed giant

Which words tell you about the *days of summer*?

Why was the tree like a *giant*? Why was it *green-robed*? What word means the opposite of *giant*?

Birds had perched upon its branches to rest, tree sparrows had built their nests in the topmost forks, and in the cool dawns had chirruped to the smiling sun

Which word tells you that the *branches* belonged to the *tree*?

Which word tells you that the *nests* belonged to the *tree sparrows*?

How do birds *perch*?

What other sparrows are there besides *tree sparrows*?

Why did the birds make their nests in *forked branches*? Why did they make them in the *topmost forks*?

About what time on summer mornings do birds begin to chirrup? Think of another word for *chirruped*.

When is *dawn*? Why is the dawn called *cool*? What word means the opposite of *cool*?

Why does the rising sun look as if it were *smiling*?

Children had played beneath it, and under its great shadows tired grown-ups had rested from the heat of the noisy streets

What is meant by *it*?

Why was its shadow *great*?

Who are *grown-ups*? Why should the grown-ups be *tired*?

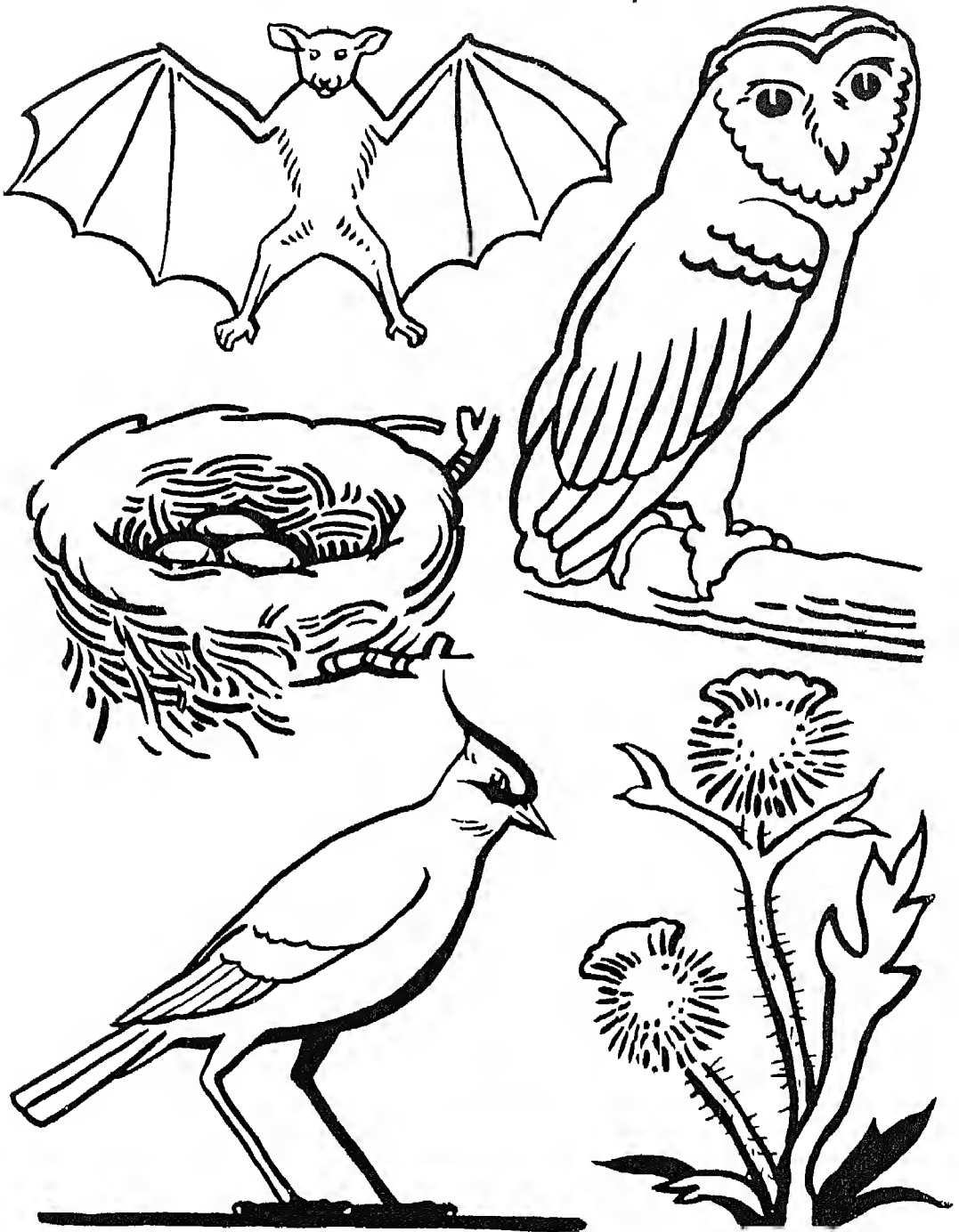
What makes the streets *noisy*? What word means the opposite of *noisy*?

5. Make sentences telling—

(a) what the Plane Tree heard in the autumn; (b) what the Plane Tree asked the buds; (c) what the birds told the Plane Tree, (d) what the leaves wished to do, (e) what happened to the leaves.

(For blackboard illustrations of Bird's Nest and Lapwing see opposite page)

SKETCHES FOR THE BLACKBOARD



BAT, OWL, THISTLE—SEE PAGE 150
BIRD'S NEST AND LAPWING—SEE PAGE 153



THE HOP-ABOUT MAN

WEE-WUN was a little gnome who lived in the Bye-bye Meadow, in a fine new house which he loved. To live in the Bye-bye Meadow was sometimes a dangerous thing, for all the big people lived there. Wee-Wun might have lived on the other common with the other gnomes and fairies if he had liked, but he did not. He liked better to be among the big people on the Bye-bye Meadow. And perhaps if he had not been such a careless fellow he might not have got into so much trouble there, but he was as careless as he could be.

One day Wee-Wun was flying across the Bye-bye Meadow, with his cap at the back of his head, and his pockets full of blue blow-away seeds, when he saw lying upon the ground two little shoes of blue and silver, with upturned toes.

"Here is a find!" cried he, and he bent down over the little shoes with round eyes.

There they were, and they said nothing about how they had come there, but lay sadly on their sides, as silent as could be.

"I shall certainly take them home to my fine house," said Wee-Wun the gnome,

"for they must be lonely lying here. They shall stand upon my mantel-shelf and every morning I shall say, 'Good-morning, little blue shoes,' and every night I shall say, 'Good-night,' and we shall all be as happy as can be."

So he went to put the little shoes into his pockets, but he found they were already full of blue blow-away seeds.

Then Wee-Wun took the blue blow-away seeds, and cast them over the wall into the Stir-about Wife's garden. And he put the little shoes into his pocket, and flew away.

The garden of the Stir-about Wife is full of golden dandelions. That is because the Stir-about Wife likes best to brew golden spells that will make folk happy, and of course dandelions are the flowers you use for golden spells.

But the very next day after Wee-Wun had passed, when she came into her garden to gather every twentieth dandelion, she could hardly see a dandelion because of the blow-aways that were growing everywhere, and casting their fluff into the dandelions' eyes.

When the Stir-about Wife saw this

mournful sight she wept, because her beautiful spell, which she was about to finish, was quite spoiled. And after a little while she went into her house and made another spell instead.

On the morrow Wee-Wun the gnome came flying over the Bye-bye Meadow, just as careless as ever. He stopped for a moment by the Stir-about Wife's garden to look at the spot where he had found the little blue shoes, to see if there were another pair there. And after he had seen that no one had dropped another pair of little blue shoes, he hung over the Stir-about Wife's wall and looked at her garden, and when he saw the blue blow-aways he laughed so much that he fell upon the ground.

"That is a new kind of dandelion," said he, and he picked himself up, laughing still. Then he saw that upon the ground where he had fallen there lay a large seed that shone in the sun. It was as blue as the little blue shoes, and Wee-Wun had never seen any seed like it before. He took it in his hand, and how it twinkled and shone!

"I shall plant this in my garden," said Wee-Wun, "and I shall have a plant which will have sunbeams for flowers."

So he dropped it into his pocket and flew away home. That evening he made a little hole, and when he had dropped the blue seed into it he patted the earth down.

"Grow quickly, little seed," said he. Then he thought of the Stir-about Wife's garden, and he began to laugh, and he laughed now and again the whole night through.

But when he awakened in the morning, alack! he laughed no more, for his fine home was so dark that he could see not a pace in front of him.

"This is very odd, very odd indeed!" said Wee-Wun the gnome, and he rubbed his eyes very hard. But this was no dream, and no matter how hard he rubbed, he could not rub it away. Then he heard upon the floor a clatter and a rustle, and then a stepping noise—one, two, one, two—and that was the little blue shoes that were

marching round and round over the floor very steadily.

And as they marched they sang this song:

"Ring-a-ding-dill, ring-a-ding-dill,
The Hop-about Man comes over the hill
Why is he coming, and what will he see?
Rickety, rackety—one, two, three"

And they sang it over and over again.

"Well, this is a fine time to sing, when it is as dark as can be!" cried Wee-Wun. But the little shoes took no notice at all.

So Wee-Wun went outside to his garden, and then he saw that the whole world was not dark, as he had supposed, but only his little home. For in the spot where he had sown the blue seed, there had sprung up a huge plant which covered over the window of Wee-Wun's fine house, and reached far above its roof.

Wee-Wun began to weep, for he did not see why this thing had come to him. And after he had wept awhile he went close to the fearful plant and walked round it, and looked up and down.

And then he said, "Why, it is a blue blow-away!" And so it was, but far, far larger than any Wee-Wun had ever seen in his life before. And it had grown as high and as big as that in just one night.

"What will it be like to-morrow?" thought Wee-Wun, and he began to weep again. But the blue blow-away took no notice of his tears, and the little shoes inside the house went on singing; so Wee-Wun had to stir his wits, and consider what was to be done. And when he had considered awhile, he set off for the house of the Green Ogre, shaking in his shoes.

The Green Ogre was planting peas, one by one. When he saw Wee-Wun come along, with tears still on his cheeks and shaking in his shoes, he said.

"My little gnome, you had better keep away, lest I plant you in mistake for a pea."

But Wee-Wun said:

"Oh, dear Green Ogre, wouldn't you like a nice blue blow-away for your garden? I have one which is quite big enough for you; it is taller than my little house. You have never seen a blow-away so fine"

"And are you weeping, my Wee-Wun, because you have such a fine blue blow-away?" asked the Green Ogre, and he began to laugh

But Wee-Wun said

"I am weeping to see such a fine garden as yours without a blue blow-away in it. That is a sad sight"

himself, and he looked at the hole where the blue blow-away had been, and laughed. Then he went into his fine home, but that was no longer empty, for in the seat by the fireside sat a little man in a blue smock and feather cap. And he looked quite happy and at home. And above his head on the mantelshelf were the little blue shoes, as quiet as could be.

"This is a nice thing," said Wee-Wun, opening his eyes wide. "Who are you that you have come into my little house where I like to sit all alone?"



"There is something in that," said the Green Ogre, and he set down his peas, and thought. Then he said: "Very well, I will come and look at your blue blow-away." And he set off at once.

Now when the Green Ogre saw the blue blow-away in Wee-Wun's garden, he thought it was certainly the best he had ever seen, and much too fine for a little gnome like Wee-Wun. So he dug it up in a great hurry and carried it away

"There, that was managed very easily," said Wee-Wun the gnome joyously to

And the little man replied at once:

"I am the Hop-about Man, and since you have let the Green Ogre carry away the blue blow-away in which I lived, I have come to live with you."

"But my fine house is not big enough to hold two people," cried Wee-Wun

"It is big enough to hold twelve tigers," said the Hop-about Man, "so it can easily hold two little gnomes. As for me, here I am, and here I mean to stay"

And not another word would he say. At this Wee-Wun was in a terrible way, as you

may think But there was the Hop-about Man, and he did not seem to care, not one bit

So Wee-Wun went on his way, and when he had made a platter of porridge for his breakfast, the Hop-about Man said

"Ah, that is my breakfast, I see," and he ate it up in a twink So Wee-Wun had to make another platterful, and alack, he was careless, and let that porridge burn, and he could not eat it, though he tried hard Afterwards he went out to fetch wood for his fire, and when he had fetched it, he threw it into a corner, and he left the door wide open, so that a draught fell upon the Hop-about Man But the Hop-about Man said nothing

Then Wee-Wun went out to dig in his garden, and he dug there the whole day long, and when he came in in the evening, there was the Hop-about Man sitting in his chair When Wee-Wun looked at his blue smock and his feather cap he saw that the Hop-about Man looked just like a blue blow-away growing in the chair at Wee-Wun's fireside. But when Wee-Wun the gnome came in, the Hop-about Man flew out of his chair, and he flew all around the room, singing this song:

"Ring-a-ding-dill, ring-a-ding-dill,

Let all careless things hop about if they will "

Alack! he had no sooner sung this song than the door which Wee-Wun had left open jumped off its hinges and ran about the floor, and the wood which he had thrown into the corner flew out and rushed about too. The Hop-about Man's platter, which Wee-Wun had forgotten to wash, flew up to the ceiling, and the wooden spoon spun round like a top on the floor, and all the chairs and tables Wee-Wun had left awry began to dance

"Certainly my fine house will come down about my ears," cried poor Wee-Wun

Then he felt a tug at his hair, and that was his cap, which he had put on inside out,

and which was anxious to be off and join in the fun. And his spade, which he had left lying on the ground outside, came running in at the place where the door had been, stirring everything as it came. His house was a muddle, and Wee-Wun began to weep.

"Oh, dear Hop-about Man," he cried, "do tell everything to be quiet again, please, for I can hear the walls of my fine house shaking!"

But the Hop-about Man, who was again sitting in his chair, replied

"Things will be quiet again when you have put all careless things straight "

So Wee-Wun set to work, and he wept ever so fast You see, it is difficult to put careless things straight when they are running about all the time, and you have to catch them first. But at last Wee-Wun set the door on its hinges, and put the wood in the wood cellar, and washed the Hop-about Man's platter and spoon, and set straight all the chairs and tables, and put the spade in the place where it ought to be, and he was so tired that he could hardly move another step. But the Hop-about Man did not notice him at all, and when Wee-Wun cried out to the little blue shoes:

"See how hard I am working," they were quite silent. And you do not know how silent blue shoes can be.

The Hop-about Man was falling asleep in his chair when all was finished, and Wee-Wun again shed tears.

"Oh, Hop-about Man," he cried, "are you never going away?"

And the Hop-about Man replied

"Certainly I am very comfortable here, with half of this fine house for my own, and I can only walk away if I have a pair of little blue shoes to walk in, and I can only go when you have set all careless things straight "

Poor Wee-Wun! He took the little blue shoes in a hurry, and his tears were dropping all the time

"Good-bye, little blue shoes," he said,

but the Hop-about Man did not seem to notice And when Wee-Wun gave them to him he put them upon his feet, but he did not stir, not an inch.

Then Wee-Wun sighed a long sigh, and he flew over the Bye-bye Meadow till he reached the garden of the Stir-about Wife, which is bound about by a wall And there all night he weeded, pulling up blue blow-aways by the score. But when in the morning he went back to his fine house, the Hop-about Man was gone.

EXERCISES BASED ON THE TEXT

The plan and scope of these exercises are fully explained on pages 136-138.

1. Read and play.—

Play that you are looking with round eyes at something

Play that you are Wee-Wun planting his seed.

Make a clatter.

Make a rustle

March round the room—one, two; one, two.

March round the room and sing the song of the shoes.

Make a draught

Put your books awry.

Make a chair dance

Play that you are considering.

Play that you are shaking in your shoes.

Play that you are digging.

Play that you are weeding.

2. Do you know?—

What grows in a meadow?

What grows on a common?

What is the colour of peas?

Is burnt porridge nice to eat?

Where ought a spade to be kept?

How many is a score?

3. Put in the name-words : selection by memory of nouns used in the story, where the complete sentences may be found —

Wee-Wun was a little —.

Wee-Wun saw lying upon the ground two little — of blue and silver.

The garden of the Stir-about Wife is full of golden —.

In the spot where Wee-Wun had sown the blue seed had sprung up a huge —.

The Green Ogre was planting —, one by one

Wee-Wun made a platter of — for his breakfast

The door which Wee-Wun had left open jumped off its —

4. Put the careless things straight for Wee-Wun : selection of appropriate subject and predicate —

The door	he washed quite clean.
The wood	he set on its hinges
The tables and chairs	he pulled up by the score
The platter and spoon	he put in the woodshed
The blue blow-aways	he put straight

5. Tell me.—

Where did Wee-Wun live?

What did Wee-Wun find?

What did Wee-Wun throw into the Stir-about Wife's garden?

Who do you think put the large blue seed for Wee-Wun to find?

Why did Wee-Wun's house become dark?

Whom did Wee-Wun find in his house after the large blow-away had gone?

Why did Wee-Wun have to put all careless things straight?

How did Wee-Wun lose his little blue shoes?

What was the last careless thing that Wee-Wun had to put straight before the Hop-about Man would go away?

6. Marked passage : for intensive study
The questions on this passage cover the following points: (a) *grammar*—pronouns, adjectives, adverbs, form of the possessive, (b) *word study*—meanings of words, words

of opposite meaning, synonyms; (c) *punctuation*—capital letters—

Now when the Green Ogre saw the blue blow-away in Wee-Wun's garden, he thought it was certainly the best he had ever seen, and much too fine for a little gnome like Wee-Wun.

Think of another word for *Ogre*. Why do the words *Green Ogre* begin with capital letters?

Which other name-words begin with capital letters?

Why was the gnome called *Wee-Wun*? Which name do you prefer for a gnome—*Wee-Wun* or *Little-One*?

What do the lifted comma and the *s* in *Wee-Wun's* tell us? Write with a lifted comma: the peas of the *Ogre*; the seed of *Wee-Wun*.

Tell the proper names for *he* and *it*.

What word means the opposite of *best*?

What does *fine* mean? What does *fine* mean when we say *fine thread*, or *fine hair*?

Which word tells you about the gnome? Think of another word for *little*.

So he dug it up in a great hurry and carried it away

Who is meant by *he*?

What is meant by *it*?

Why did he dig it up *in a hurry*?

Think of other words for *in a great hurry*. Where do you think he took the blow-away? From what place did he carry it away?

"There, that was managed very easily," said Wee-Wun the gnome joyously to himself, and he looked at the hole where the blue blow-away had been, and laughed.

What do these lifted commas " " show?

Say *that was managed* in other words. What had Wee-Wun managed to do? Which words tell you more about how he had managed to do it?

Think of another word for *joyously*.

Who is meant by *himself*?

Who had made the hole?

Why did Wee-Wun laugh?

7. Make sentences telling—

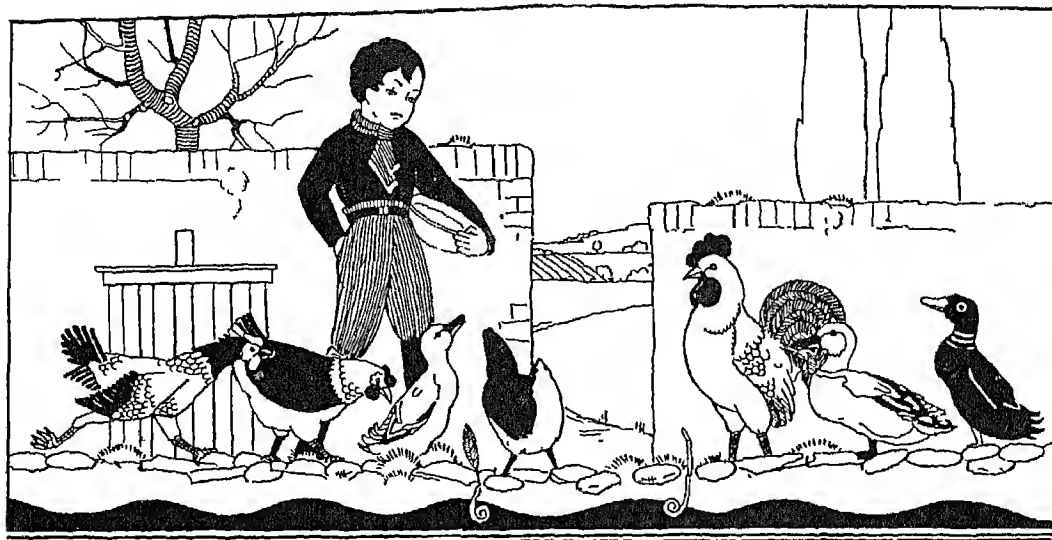
(a) where Wee-Wun put the shoes and what he was going to say to them every morning; (b) how he planted the seed he found; (c) what the Hop-about Man looked like; (d) what happened to the furniture in Wee-Wun's house

8. Draw.—

The blue and silver shoes A dandelion. A feather cap. A plate of porridge A spade.

(For blackboard illustrations of a Pair of Shoes, a Dandelion and Spade see page 165.)





THE EARTHWORM

AN earthworm once lived in a beautiful meadow, where he had made a hole deep down into the ground to live in, and where he ate the earth and dead leaves.

But one day some people came, who built a house in the meadow with a yard round it. The earthworm crept down into the ground during the winter to a depth greater than the height of a man, that the frost might not reach him. Rolled up tight at the bottom of his hole, he slept the winter through, but when he awoke with the coming of spring, and crept upwards to eat the grass roots he found both grass and plants had disappeared. There was nothing to be seen but cobble stones, with which the people had neatly paved their yard, and chickens and ducks, the enemies of the worm, were marching about on the top of them.

So the good days for the little worm were over. There were no leaves left for him to eat, only the lean earth, which he swallowed down, and with this he had to content himself day after day. Like any fine lady, the worm found that the bright sunlight

disagreed with him, and as he was not clever enough to get himself a sunshade, he stayed all day in the dark, hidden away beneath the cobble stones of the yard. Not till the sun had gone to bed, and the chickens and ducks had followed suit, did he venture forth.

He poked up his head from between the stones, and was glad when the soft rain drops fell upon him. Venturing out, he called upon his neighbour, a worm who lived under the nearest stone, and who was an old friend of the happy meadow days. They chatted together of the good old times, and were as cheery as ever earthworms can be. Then they looked about to see if there were any tasty morsels to be found, for earth, and nothing but earth to eat morning, noon and night becomes monotonous, even to an earthworm. One found a blade of straw lying close to his hole, and although a worm has no eyes, he took good note of it, seized it in the middle with his mouth, doubled it up, and dragged it down a good way into his house. The other found a long feather, which the cock had lost the day before, and seizing it by the quill he like-

wise pulled it into his hole. Both made up their minds to feast upon these delicacies during the next few days.

Next morning when the farmer's child came down into the yard he saw the straw and the feather standing up amidst the cobbles, as if some one had planted them, and yet he felt quite sure that they had not stood there the night before. But we could have told him that the poor earthworms were preparing a feast of what was useless to anyone else.

EXERCISES BASED ON THE TEXT

The plan and scope of these exercises are fully explained on pages 136-138.

1. Read and play.—

Play that your finger is a worm making a hole.

Play that you are creeping.

Play that you are marching about

Play that you are looking for something to eat

Talk in a monotonous voice.

Seize a pencil

Double up a sheet of paper

2. Put together: selection of appropriate subject and predicate.—

An earthworm	saw the straw and the feather standing upright amidst the cobbles.
Some people	made a hole deep down into the ground
The chickens and ducks	built a house in the meadow with a yard round it.
The farmer's child	were marching about on the cobble stones

3. Tell me.—

Name three things that worms eat.

What do worms do in the winter?

What creatures are the enemies of a worm?

Why did the worm venture forth only at night?

Does a worm like rain?

What did the worm say when he met his old friend?

What did the two worms find to eat?

Can a worm see?

4. Marked passage: for intensive study
The questions on this passage cover the following points (a) *grammar*—pronouns, adjectives, use of *there* and *their*, (b) *word study*—meanings of words, words of opposite meaning, synonyms—

So the good days for the little worm were over.

What were the *good days*? What word means the opposite of *good*? Why were they over?

Which word tells you more about the *worm*? What word means the opposite of *little*?

Think of another word for *over*

There were no leaves left for him to eat, only the lean earth, which he swallowed down, and with this he had to content himself day after day

Put either *there* or *their* in the gaps in these sentences 1. Some people came to the meadow to see if — was room to build a house in it 2. The people laid cobble stones round — house 3. The chickens and ducks went to — beds at sundown 4. The earthworms looked about to see if — were any tasty morsels to be found

Why were there no leaves?

What does the word *lean* mean here?

What does the word *lean* mean when we say *lean meat*?

What is meant by *which*?

What is meant by *this*?

Who is *himself*?

Think of another word for *content*

Like any fine lady, the worm found that the bright sunlight disagreed with him, and as he was not clever enough to get himself a sunshade, he stayed all day in the dark,

hidden away beneath the cobble stones of the yard

Why would a fine lady dislike the sunlight? Would *she* be able to find herself a sunshade? How did the worm shade himself from the sun?

Think of another word for *fine*.

Which word tells you more about the *sunlight*? What word means the opposite of *bright*?

What word means the opposite of *disagreed*?

Think of another word for *beneath*

Make a sentence telling what the worm said to himself about the sunlight, begin your sentence: The worm said "—"

What are cobble stones? Are cobble stones pleasant to walk on?

Not till the sun had gone to bed, and the chickens and ducks had followed suit, did he venture forth.

When does the sun go to bed?

What does *followed suit* mean?

Who is meant by *he*?

Say *venture forth* in other words

5. Make sentences telling—

(a) why the worm went into the ground during the winter; (b) what the worm found when he woke up in the spring, (c) what the farmer's child saw in the yard

6. Draw.—

A worm A sunshade

(For blackboard illustrations of a Sunshade, Feather and Cobble Stones see page 165)



SKETCHES FOR THE BLACKBOARD



PAIR OF SHOES, SPADE AND DANDELION—SEE PAGE 161
SUNSHADE, FEATHER AND COBBLE STONES—SEE OPPOSITE PAGE

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**TEACHING OF COMPOSITION
IN THE
PRIMARY SCHOOL**

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From the picture by
J. W. Waterhouse, R. A.

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ECHO AND NARCISSUS

Narcissus, loved by the nymph Echo, did not return her love, and she died of grief. As a punishment the gods caused Narcissus to fall in love with his own reflection in a spring. This fruitless love made him pine away, until he was changed into the flower that now bears his name.

THE FIRST YEAR'S COURSE OF COMPOSITION

INTRODUCTION

THE exercises in the section on Literature deal with the study of prose, and cover a wide field in oral and written composition. In preparing a year's course of work in English, however, it will be found advisable to devote one half of the allotted time to more systematic prose study, each lesson being narrowed down to bring out certain grammatical points. These exercises for systematic study will be based on short and simple stories, or on pictures with suitable subjects. A series of graduated exercises providing work for at least twenty-six weeks is set out in the following pages.

The short story.—The story should be read aloud by the teacher in a simple and natural manner. From their earliest years children should be trained to listen to a story read in a natural voice without emphasis or dramatic effect other than is necessary to make the story interesting and real. The disciplinary value of training children to listen is very great. The sense of hearing is fully developed by the age of seven, hence if any child gives evidence of being unable to hear well he should be referred to the medical officer.

The teacher then asks a few questions on the subject matter of the story, not with any intention of exhausting the matter, but merely to draw out the essential points of the plot. The first three questions asked are always the same in character—(1) What does the beginning of the story tell you? (2) What does the middle of the story tell you? (3) What does the end of the story tell you? Practically every short story can be divided into three fundamental parts—the beginning, the middle and the end. If

the teacher begins with the same questions on every short story the children will be alert to notice these essentials, and they will be trained to separate at a later period their own stories, letters and compositions into these three parts.

The questions should, as far as possible, be framed to require answers in complete sentences, but it is pedantic and unnatural to expect a complete sentence in reply to every question that is asked. Frequently, especially in the early stages, several children will be needed to supply even one answer in an entirely satisfactory manner. The last exercise is, of course, the most important—retell the story. Several children will assist in this. One or more will retell the beginning of the story. What does it tell?—that is the fundamental point for them always. Others will fill in the story, one correcting another, the teacher encouraging and supplying hints by means of judicious questioning until the middle of the story is filled in. The end is treated in the same way.

As the children progress and gain confidence some will be able to retell the whole story, but such proficiency must not be expected too soon; it can come about only after training and much practice. At first the children will join all, or most, of their sentences with "and," but the teacher will gradually train them to use subordinate clauses. It is a mistake to ask too many questions about the story, as this practice will lead to answering in short, fragmentary sentences. The only way to secure real advancement in continuous narrative is to encourage the children to give a connected account of the whole story.

Dramatisation and drawing.—The children should always be encouraged to ask questions

about the story, since this will afford the teacher further opportunities of correcting their vocabulary and will indicate which parts of the story are imperfectly understood. Frequently, a short story lends itself admirably to dramatisation. The actors should be selected, as far as possible, from those who speak badly or with little freedom. The glamour of acting goes a long way to help children in expressing their own ideas. Dramatisation should, as a rule, be practised by small groups of children while the rest of the class are otherwise employed.

It will frequently be advisable to allow the children to make an imaginary drawing of some incident in the story. The incident illustrated should be selected by the individual. If convenient, paints and pastels are the best media for work of this kind because children delight in colour work. The children's own efforts in drawing profoundly influence the development of their sense of beauty.

The practice of dramatisation and free drawing is particularly necessary when children have recently left the infant school, for work of this character helps to bridge over the gap caused by transference to the primary school. It must always be borne in mind that children of seven cannot concentrate for long periods on set tasks. By giving variety of work and action during the course of a lesson the children will be kept alert, interested and happy.

Composition should not be looked upon as a "subject" to be taught separately. The work may be considered from the project standpoint. The centre of interest is the story, and through questions, answers, writing, drawing and acting, the children will work together, some in groups, others individually, to explore the different avenues which diverge from that centre.

Written work.—The whole of a lesson should not as a rule be devoted to oral work. Ten to fifteen minutes of concentrated oral work of the kind suggested are sufficient for young children. The next part of the

lesson must be given to writing. In the course outlined below the writing always begins with drill. This plan has many advantages. The majority of the class, often every individual, begins writing at once. There is no hesitation, no useless questioning by those children who never know what to do. The suggestions given for this drill are (1) a series of common words and phrases that every child of seven to eight should know how to write accurately and without hesitation, and (2) a short passage, perhaps merely a sentence, which is dictated by the teacher. It is a good plan for all children to do some kind of written drill. It gives them confidence in the handling of the pen. In a few weeks every child will write something—it may be very little—accurately. This is a step forward and means a great deal to a dull child. Some children can never write even a few sentences correctly, but at least they can write a few words correctly, provided they do the same thing often enough. It is an immense encouragement to them to be smiled upon for having done a little well. Regular daily practice in writing short passages from dictation affords a valuable training in listening. The passage should be dictated in phrases; single words should never be repeated, and the voice of the teacher should be clear and natural.

During the writing drill the teacher can put up the exercises on the blackboard. Sometimes, when lessons are short, or the oral work has taken an unusually long time, it may not be possible to do any more writing than that of the drill; but, as a rule, and certainly in the course of a few weeks, the children will be able to write at least one set of exercises. These are carefully graded. As a rule they are based on the story, and are so arranged as to cover a systematic course in the foundations of grammar, although no grammatical terms are introduced. Where, however, a teacher has a bright, intelligent class there is no reason why such grammatical terms as nouns, verbs, adjectives, etc., should not

be used, for it really simplifies the work of the teacher to use such terms, provided they are clearly understood by the class.

More difficult exercises.—One set of exercises in each week's work is marked with an asterisk. These exercises are a little more difficult than others in the course. They are intended for those members who are sufficiently far advanced to write simple sentences without assistance. Even if only one child in a class is able to do them he should be given the opportunity; usually it will be found that several children can write the answers to these asterisked questions. Naturally, the aim of the teacher will be to get the majority of the class gradually to acquire sufficient facility with the pen to answer them. From the earliest stages opportunity should be given for individual work. Even among normal children there is a wide range of ability, and it will always be found necessary during at least a part of a lesson for the children to work in groups.

A warning should be given here not to be too ambitious. Until the children have been well drilled in oral answering, careful observation, writing drill, etc., they cannot be expected to write short stories or letters. Sometimes a child here and there can do these things at an early age, and he should be given opportunity to exercise his talents, but oral work has so much value in itself that every child should take a share in it. When spelling is weak (as it must be in the first weeks of the school year), when a pen is an unfamiliar instrument, when capital letters are hardly known and nothing has been learnt of the difficulties of writing conversations, it is a mistake to set such questions as—"Describe this picture", "Pretend you are a fairy and tell what you would do", "Pretend that you are an animal"—and so on. If there is one subject more than another the teaching of which should be governed by the maxim "Walk before you run," it is that of writing compositions.

Spelling.—Spelling is mostly learned incidentally. If children are trained to observe during the intensive study of the literary passages they will quickly learn to spell common words. As we know from our own experience, it is the appearance of a word that governs most of our own spelling, hence the necessity for the teacher ever to be directing the children's observation. Do not allow the children to copy incorrectly from the blackboard. Some, indeed many, will do this in a perfectly light-hearted manner, and the teacher must assure himself that all words are copied accurately. Many more words, however, in common use have to be learnt in addition to those that occur in the prose reading, and means must be adopted to get these words learned. Many teachers make a practice of having two, three or more new words learned every day. Such words may be included in the writing drill, or they may be written in the child's notebook, or at the end of the exercise book. Again, they must be accurately copied or the results will be disastrous. Many names of objects can be made familiar to the children by printing them clearly with chalk on brown paper, about eight inches long by five inches wide, and hanging or sticking the papers on the objects themselves—*window, pane, glass, iron, wood, door*, etc. A few papers should be put up at a time and removed to make way for others at intervals of a few days.

The greatest asset to the attainment of good spelling in a class is encouragement. Some children find it an extraordinarily difficult matter to write the same word correctly twice over. Keep a special list of easy words for the backward children. Let them be given the opportunity (but quite unconsciously as far as they are concerned) to look at these same words again and again. Test them when it is almost certain that every word will be written correctly. The encouragement given by this plan will have a marked effect. The list of words can be gradually extended, but always test when the work is known.

Nothing is more discouraging to a poor speller than to find his page scored with blue marks

For the assistance of those teachers who believe in spelling drill, a number of common words are here tabulated in associated groups. The words from a group should be written on the blackboard, and the children should be required to talk about them and form sentences containing them. They should then write the words in a special place reserved for spellings in their exercise books, and they should be encouraged at every available opportunity to turn to these lists and look carefully at the words. In a few weeks the children will have in their books a useful list of words to which they should be expected to refer, as one would do with a dictionary, whenever they are at a loss to spell a word

GROUPED WORDS FOR SPELLING

1 **The Classroom** : desk, ink, pen, ruler, book, paper, pencil, seat, floor, door, window, fire.

2 **Breakfast** : milk, jug, bread, butter, tea, plate, cup, saucer, pot, sugar, basin, roll

3 **Dinner** : cloth, knife, fork, spoon, soup, meat, potato, potatoes, beans, peas, sweet, pie, tart.

4 **Tea** : cake, toast, jam, tray, stand, glass jar, honey, bun, hot water, flower, spoon.

5 **Supper** : cheese, butter, brown loaf, cress, dish, beetroot, cocoa, ham, salt, pepper.

7. **Bedroom** : bed, sheet, pillow, cover, glass, table, towel, tooth brush, soap, sponge, comb.

8 **Dining Room** : mat, rug, coals, stove, poker, chair, sill, bowl, wood, tongs, walls, carpet

9 **Kitchen** : range, gas cooker, sink, tap, board, rolling pin, tin, hook, bell, pan, pipe, drain

10 **Garden** : rose, pink, daisy, leaf, stock, pansy, sweet pea, earth, lawn, lily, box, shed

11 **Garden Tools** : hoe, spade, rake, barrow, wire, string, roller, mower, shears, stick, fork.

12 **Trees** : elm, oak, ash, birch, chestnut, willow, beech, crab, poplar, holly, yew, fir, larch

13 **Toys** : bat, ball, top, doll, train, bricks, cards, skipping rope, kite

14 **Clothes** : coat, vest, shirt, boot, sock, hat, cap, dress, skirt, shoe, scarf, tie, glove.

15 **Food** : flour, wheat, rice, fat, pork, beef, veal, mutton, chop, steak, tripe, lamb, suet.

16 **Food** : eggs, hare, duck, fowl, goose, salt, fish, sprat, cod, eel, crab.

17 **People** : man, woman, boy, girl, father, mother, wife, uncle, aunt, baby, sister, child, maid, lad

18. **The Body** : head, hair, ears, brow, eye, lash, nose, mouth, tooth, teeth, gum, lip, chin, cheek, face

19. **The Body** : neck, skin, throat, chest, arm, hand, thumb, finger, palm, nail

20 **The Body** : back, leg, side, knee, shin, ankle, foot, toe, heel, calf.

21 **The Country** : field, grass, lane, hedge, weed, corn, path, road, stile, gate

22 **Animals** : horse, mare, pony, ass, cow, bull, calf, mule, dog, cat, fox

23. **Birds** : lark, dove, wren, robin, finch, owl, thrush, swan, duck, drake, cock, hen

24 **Clothes are made of** : wool, cotton, linen, silk, lace, straw, leather, skin, fur, feathers, hides, kid

25. **The World** : sky, cloud, sun, moon, stars, rain, dew, snow, hail, sleet

26 **The World** : hill, plain, vale, brook, river, sea, beach, sand, stone, shell

27 **Things we use** : paper, book, bag, box, purse, case, scales, nail, broom, pin

28 **Verbs** : walk, run, hop, jump, creep, talk, sing, shout, call, sleep

29 **Verbs**: play, read, write, spell, think, start, stop, look, wait, find

30. **Verbs**: dance, seek, swing, throw, fall, bounce, grow, draw, sink, float

31 **Months**: January, February, March, April, May, June, July, August, September, October, November, December

32 **The Days of the Week**: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday.

33. **Names of Boys**: Tom, Dick, Harry, Peter, John, James, Joe, Will, George, Ben.

34 **Names of Girls**: Kate, Jane, Mary, Rose, Lily, Mabel, Alice, Grace, Sally, May.

35. **In the Street**: car, diay, bus, tram, motor, wagon, dust cart, shop, step

36. **Trees**: branch, twig, leaf, fruit, bark, sap, root, trunk, stem, bird, nest, eggs

37 **Names and actions**: lions roar, dogs bark, cats purr, kittens mew, sheep bleat, cows low, ducks quack, girls walk, boys race, robins hop

38 **Names and actions**: mice run, hens cluck, rooks caw, doves coo, larks sing, bees hum, frogs jump, the sun shines, rain falls, snow melts.

39 **Names and actions**: the river flows, fish swim, rats bite, the mill turns, rushes grow, sheep feed, cows graze, flies buzz, the fire burns.

40 **The House**: roof, tile, slate, smoke, wall, window, stairs, floor, rail, stool, paper, lamp, couch

A SYSTEMATIC COURSE IN ORAL AND WRITTEN COMPOSITION

IN the following pages twenty stories with graduated exercises for oral and written composition are set out. For the convenience of easy reference the stories on pictures are grouped at the end of the course, but the teacher will naturally select one for study at intervals of three or four weeks. No further mention is made of the necessity for dramatisation of some of the stories or of the value of imaginative drawing of particular incidents, but these points should be considered when the teacher is preparing the lesson.

1—THE DOG AND HIS SHADOW.

INTRODUCTION

MANY children will not understand what the dog saw in the water. It must not be assumed that a child calls up a clear and concrete picture of

common things which are merely named to him. Ask the children what they see when they look into the bath, or into a pool. If necessary, let the children look into a bowl of water. Some children may not understand "crossing a narrow plank over a stream"; here, a blackboard sketch will be needed. See that the children understand the significance of the word *narrow*,—a false step would cause the dog to fall into the water.

STORY

A dog carrying a piece of meat in his mouth was one day crossing a narrow plank over a stream. Looking down into the water, he thought he saw another dog there, carrying another piece of meat. Now this was really his own shadow, but he did not know it. He stopped, and the other dog stopped also. "I'd like his meat as well as my own," thought the dog, greedily. He

shut his teeth tightly, and snarled. The other dog snarled back. He lowered his nose, and the other dog came very near. Suddenly he snatched at the other dog's meat. Alas! as he opened his mouth, his own meat fell from it into the water and sank to the bottom. The greedy dog was left with no meat at all.

If you long for what you have not, you may lose what you already have.

ORAL WORK

What does the beginning of the story tell you?

What does the middle of the story tell you?

What does the end tell you?

What did the dog see in the water?

Why did the dog snarl?

Why is the dog called greedy?

Retell the story.

Children ask questions

WRITTEN WORK

I. Children's drill.

Write your name. Write the day of the week. Write the name of the story.

Dictation—If you long for what you have not, you may lose what you already have.

II. Exercises on name-words.

A Write the following on the blackboard *dog, plank, meat, stream, mouth, water, teeth, shadow, nose.*

1. A — was carrying a piece of — in his —
2. He crossed a narrow — over a —.
3. He looked down into the —
4. There he saw his own —
5. He shut his — tightly.
6. He lowered his —

The children must write and complete the above sentences using words from the given list.

B Write the following on the blackboard

1. A mouse is afraid of a (horse, sheep, cat).
2. The farmer feeds his (cat, mouse, horse) on oats.



- 3 Sheep live in (trees, houses, meadows)
- 4 Elephants eat (fish, buns, meat)
5. Lions and tigers are fierce (birds, fish, animals).

The children must write and complete the above sentences with the appropriate words

III * Sentence making.

Tell what the dog saw in the water.
Tell why the dog snarled.
Tell how the dog lost his meat.

2—THE HARE AND THE TORTOISE

INTRODUCTION

SOME country children will have seen a hare but, probably, few will be able to distinguish a hare from a rabbit. Only a few children in a class will have seen a tortoise. Blackboard sketches of both these creatures will be needed (see illustrations on page 189), and the characteristics of each must be explained at the outset. Let a child imitate a hare running and let another imitate a tortoise crawling



STORY

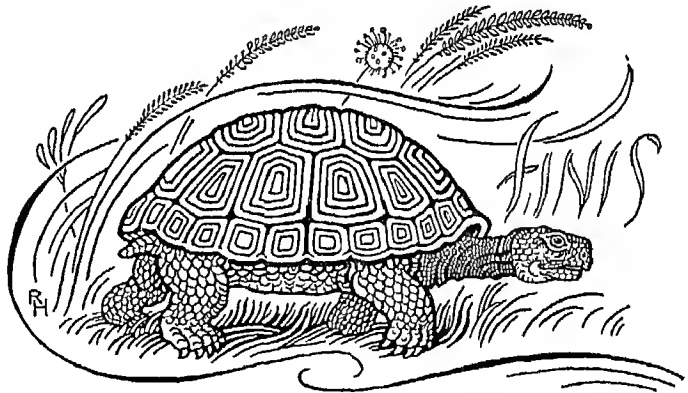
A fleet-footed hare was one day laughing at a tortoise because he walked so slowly. "Slow I may be," said the tortoise, "but I could beat you in a race any day." "Indeed!" said the hare "Then let us run

a race at once, and we will soon settle the matter "

"Very well," said the tortoise. They agreed to run as far as the hawthorn hedge, four fields away, and set out. The swift hare was soon far ahead of the tortoise, who was jogging along at his usual steady pace. "I will lie down and take a little nap," thought the hare. "I can easily overtake the tortoise when I wake "

He lay down and fell asleep. Meanwhile the tortoise plodded slowly on. Presently the hare awoke and ran like the wind across the last field, to the hedge. There, sitting in front of him, he found the tortoise, who had arrived first, and so had won the race.

Slow and Sure wins the race.



ORAL WORK

What does the beginning of the story tell you?

What does the middle of the story tell you?

What does the end tell you?

Why did the hare laugh?

Why did the hare take a nap?

Why did the hare run like the wind?

Retell the story.

Children ask questions

WRITTEN WORK

I. Children's drill.

Write your name Write the day of the week. Write the name of the story.

Dictation—Slow and Sure wins the race.

II Exercises on action-words.

A Write the following on the blackboard
laughed, walked, ran, agreed, plodded, won.

1. A hare one day — at a tortoise
2. The hare and the tortoise — a race
3. The tortoise — very slowly
4. They — to run as far as the hawthorn hedge.
5. The tortoise — very slowly.
6. The tortoise had — the race

The children must write and complete the above sentences using words from the given list

B Write the following on the blackboard

1. Fishes (run, walk, swim)
2. A bird (flows, flies, burns)
3. Boys (run, shoot, fly) kites
4. A train (leaps, runs, jumps) under a tunnel
5. The sun (walks, sails, shines) in the sky
6. On the sea ships (sail, hop, gallop).
7. The farmer's horse (gallops, shouts, creeps)

The children must write and complete the above sentences with the appropriate words

III * Sentence making.

Tell why the hare laughed

Tell why the hare lay down for a nap

Tell why the hare ran like the wind

3—BELLING THE CAT

SOME mice lived in a house in which there was also a large fierce cat, of whom they were much afraid. All day they hid in their holes for fear of being spied by her sharp eyes and pounced upon by her terrible claws. Even in the dark



night they hardly dared to venture out in search of food.

At last they all met together and had a long talk. Each mouse asked the other what could be done to make their lives safer.

"I will tell you what to do," squeaked a young mouse. "It is very simple. Let us hang a bell round the cat's neck. Then when she walks, this bell will ring. The sound will tell us of her coming, and we can run away."

"What a fine idea!" cried the others, whisking their tails and squeaking for joy.

"That is all very well," said a wise, quiet old fellow in their midst. "But who is to bell the cat?"

The mice were silent. None was brave enough for so dangerous a task.

Some things are easier said than done.

ORAL WORK

What does the beginning of the story tell you?

What does the middle of the story tell you?

What does the end tell you?

Why were the mice afraid to come out at night?

Why did the mice all meet together?

What did the young mouse say they should do?

Why did the mice squeak for joy?

Why were the mice silent when the old mouse had spoken?

Retell the story.

Children ask questions.

WRITTEN WORK

I Children's drill.

Write your name. Write the day of the week. Write the name of the story.

Dictation — Some things are easier said than done.

II. Exercises on descriptive words.

A. Write the following on the blackboard:
large, sharp, fierce, terrible, dark, long, quiet, old, wise, silent.

- 1 A cat has — eyes and — claws.
- 2 The cat was — and —.
- 3 The mice were afraid to come out in the — night.
- 4 They had a — talk together.
- 5 The old mouse was — and —.
6. When the — mouse had spoken all the others were —.

The children must write and complete the above sentences, using words from the given list.



B Write the following on the blackboard, first letting the children select the words of opposite meaning: *large, small; fierce, gentle; sharp, blunt, dark, light; long, short, wise, foolish; quiet, noisy; old, young.*

When the words have been carefully considered clean the blackboard and proceed with the next exercise.

C. Write the following on the blackboard.

1. A cat is fierce but a mouse is —
2. An elephant is large but a mouse is —.
3. Claws are — while sticks are blunt
4. At night it is —, and in the day it is —
5. In summer we have long days and — nights.
6. The young mice were — while the old mouse was wise
7. Some children are quiet, others are —.
8. The man is old but the child is —.

The children must write and complete the above sentences.

III.* Sentence making.

Tell what the cat was like.

Tell why the mice all met together

Tell why the mice did not put a bell round the cat's neck

4—THE KING OF THE BIRDS

INTRODUCTION

THERE are several birds mentioned in this story and most of them will be unfamiliar to children. Blackboard sketches or pictures will be needed—see page 179. There must be a short preliminary talk on the different characteristics of the birds—handsome peacock; wise, solemn owl, screaming parrot, strong, fierce eagle; tiny wren

STORY

All the birds of the air met together one day to choose themselves a king. They

chirped and twittered and sang, but they could not decide how the king should be chosen.

"He must be handsome," said the peacock, spreading out his beautiful tail.

"He must be wise," said the solemn owl.

"He must have a loud, clear voice," screamed the parrot.

"You are all wrong," said the eagle. "What the king of the birds needs is to be able to fly higher than all the other birds of the air."

Because the eagle was strong and fierce and all the other birds were afraid of him, they said that he was right. The bird that flew highest ought to be king. So they all ranged themselves side by side on a long fence. When the old white duck quacked, every bird was to fly up and up in the air, until he could fly no higher.

"The eagle will win," they twittered to each other on the fence. "The eagle will win."

Now among the birds was a tiny wren, who thought of a clever plan. When no one was looking, he seated himself gently on the eagle's back. "Quack! quack!" said the old white duck. Up went the birds, up and up to the sky, and up went the little wren on the eagle's back. Soon they had left all the other birds far below. Higher and higher the eagle went, till at last he was tired out, and began to come down. Then from his back the little wren flew up higher still, till he was lost to sight in the clouds.

"The wren has flown highest! The wren has won," sang the birds. Even the eagle had to agree that this was true. So the tiny wren was crowned king of the birds.

ORAL WORK

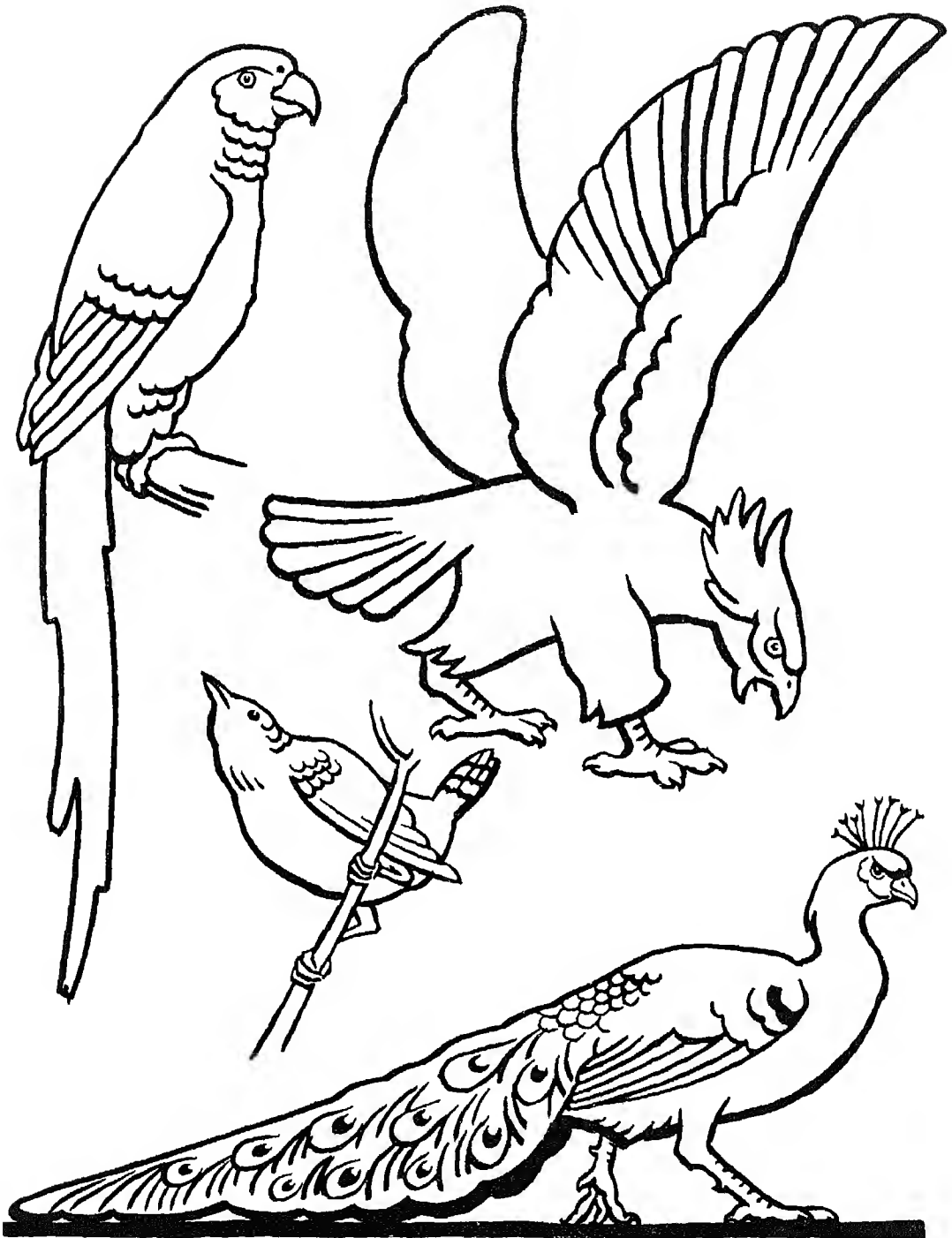
What does the beginning of the story tell you?

What does the middle of the story tell you?

What does the end tell you?

How did the birds talk to one another?

SKETCHES FOR THE BLACKBOARD



PARROT, EAGLE, WREN, PEACOCK—SEE PAGE 178

Why were the other birds afraid of the eagle?

How did the wren show he was clever?

Retell the story

Children ask questions.

WRITTEN WORK

I Children's drill.

Write your name Write the day of the week Write the month of the year. Write the name of the story.

Dictation—The bird that flew highest ought to be king

II Exercises on saying and descriptive words.

A Write the following on the blackboard: *chirp, sings, scream, quack, mew, caw, laugh, barks.*

- 1 A canary —.
- 2 Sparrows —
- 3 Ducks —
- 4 Children —
- 5 Parrots —
- 6 Kittens —
- 7 A dog —
- 8 Rooks —

The children must complete the above sentences using words from the given list

B. Write the following on the blackboard *wise, beautiful, loud, clear, fierce, strong, clever, long*

1. A peacock has a — tail
- 2 An owl is a — bird
- 3 The parrot screamed in a — voice
- 4 The eagle was — and —
- 5 The wren was very —.
6. The birds all sat on a — fence

The children must write and complete the above sentences using words from the given list.

III * Sentence making.

Tell why the birds all met together

Tell why they were afraid of the eagle.

Tell how the wren became king of the birds

5—THE KING AND THE CAKES

INTRODUCTION

THE ancient method of baking cakes on the hearth must be explained (It always puzzled the writer in his childhood) Explain the word *peasant* and write it on the blackboard. If the children have never heard the story of the Danish invasion it must be told briefly.

STORY

An old story tells that Alfred the Great, king of England, was being hunted by his enemies the Danes. He dressed himself in rough clothes and hid for a few nights in the hut of a poor peasant. The peasant's wife had no idea that he was the king, and thought him a lazy fellow to sit dreaming by the fire, doing nothing all day but mend his bow and arrows.

"As you have no work to do," said she, "keep an eye on my cakes that are baking on the hearth while I am out. See that they do not burn."

When she had gone, Alfred gazed into the fire, his head full of plans for winning a great battle against his enemies. He forgot where he was. He forgot the fire and the cakes, and did not even smell them burning at his feet. In a short time they were nothing but hot cinders!

Presently the woman returned, and asked at once about her cakes. "What cakes?" said Alfred, in surprise.

"What! You have forgotten them?" she cried. "Ah! lazy scamp! look at them, burnt to ashes!" and, throwing up her hands in fury, she boxed the king's ears.

"Stay, wife, stay!" cried her husband, rushing in, and pulling her back. "Kneel, for thy life! Thou hast struck thy lord the king."

Filled with fear, the two knelt to Alfred for mercy.

"Nay, rise, and fear not," said the king, smiling. "It was my fault for forgetting my promise." Thus he kindly forgave the box on the ear.



ORAL WORK

What does the beginning of the story tell you?

What does the middle of the story tell you?

What does the end of the story tell you?

Why did King Alfred have to hide in a hut?

Why did the king forget to mind the cakes?

Why did the peasant tell his wife to kneel before the king?

Retell the story.

Children ask questions.

WRITTEN WORK

I Children's drill.

Write your name Write the day of the week Write the month of the year Write the name of the story. Write the name of the king

Dictation—In a short time they were nothing but hot cinders

II Exercises on proper names and phrases.

A. Write the following on the blackboard.
Alfred, Peter, John, Dick, Harry, Tom, Miss Muffet, Bo-peep, Cock Robin, Boy Blue

- 1 peter and john are twins
2. where are dick's toys?
- 3 little miss muffet sat on a tuffet
- 4 little bo-peep has lost her sheep
- 5 who killed cock robin?

6. tom, dick, and harry have all gone to school

7 alfred was king of england.

The children must write the above sentences correctly.

B. Write the following on the blackboard:

- 1 fire, a, lighted, woman, The
2. put, cakes, She, the, on, hearth.
3. Shovel, made, poker, and tongs, are, of, steel.
- 4 wood, made, are, of, Matches
- 5 Cinders and ashes, from, come, coal.

The children must make these groups of words into sentences.

C. Write the following on the blackboard:
on the hearth, in the hut, at his feet, on the ear; into the fire

1. King Alfred hid —
2. The cakes were baking —.
3. The king gazed —
- 4 He did not smell the cakes burning —.
5. The woman gave the king a box —

The children must write and complete the above sentences, using phrases from the given list

III.* Sentence making.

Tell why Alfred the Great hid in a hut.

Tell why the king forgot to mind the cakes.

Tell why the peasant told his wife to kneel.

6—A WOLF IN SHEEP'S CLOTHING

INTRODUCTION

TELL briefly the story of the shepherd's work and explain the necessity for watching his flocks by night. Children in some city schools may never have seen a sheep. There is a drawing of a wolf on page 149. After the reading let children feel a hairy fur and a woolly rug, if these or some other such articles can be obtained

STORY

A hungry wolf wanted a fat sheep for supper, but did not know how to steal one without being caught by the shepherd. At last he thought of a plan. "Oho!" said he, "I will cover myself with a sheepskin, and go into the fold with the flock. Then in the dead of night, when the shepherd sleeps, I will carry the fattest lamb off to my den." So that evening, he put on a sheepskin and went into the fold with the sheep.

On that very night, a butcher called at the shepherd's house, and asked for a sheep to kill. "I will choose a fine one for you," said the shepherd, and went into the fold. He felt over each animal to pick out the best, and came upon one which had a woolly back, but hairy ears.

"This is a strange kind of sheep," cried the shepherd. He dragged the wolf out of the fold, and putting a rope round his neck, hanged him from the nearest tree.

"Why are you hanging a poor harmless sheep?" asked a passer-by.

"This is no sheep," replied the shepherd, "but a wolf in sheep's clothing."

Do not pretend to be good,
be really good.

ORAL WORK

What does the beginning of the story tell you?

What does the middle of the story tell you?

What does the end of the story tell you?

Why did the wolf put on a sheepskin?

Where are sheep sometimes kept at night?

How did the shepherd know it was a wolf when he laid his hand on him?

Retell the story.

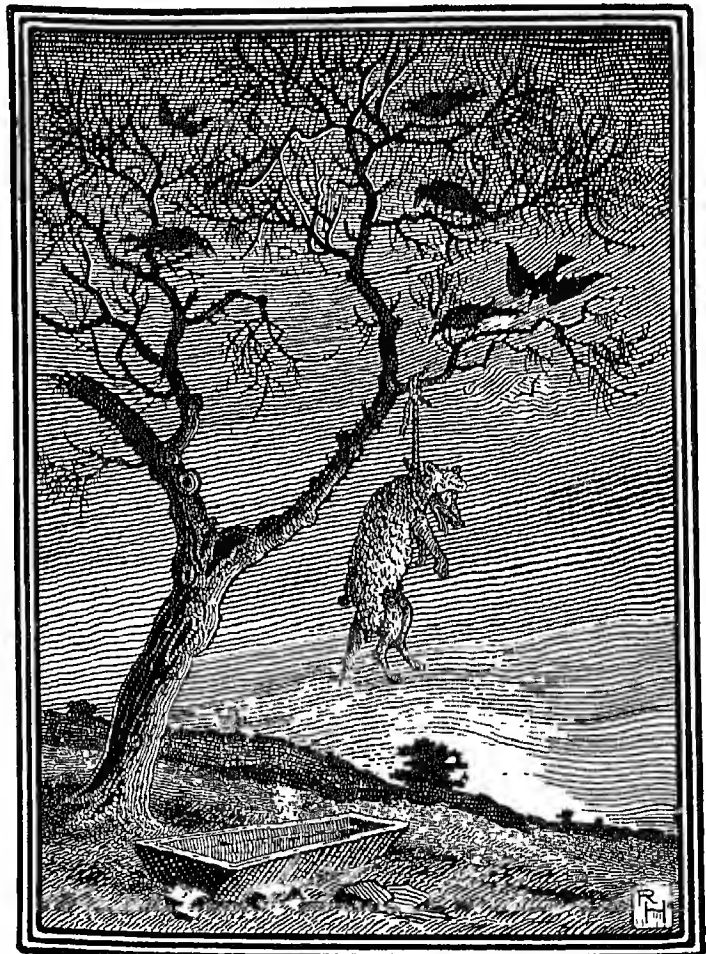
Children ask questions.

WRITTEN WORK

I Children's drill.

Write your name. Write the day of the week. Write the month of the year. Write the name of the story.

Dictation — Do not pretend to be good; be really good.



II Exercises on writing questions.

A Write the following on the blackboard.
fat sheep, want, ask, shepherd, wolf, rope.

- 1 Why did the wolf want a — ?
2. When did the — go into the fold ?
3. What did the butcher — ?
4. How did the — pick out a fat sheep ?
5. Where did the shepherd put the — ?
- 6 What did the passer-by — the shepherd ?

The children must write and complete the above sentences, using words from the given list.

B. Write the following on the blackboard.
who, where, what, why, when.

1. — is the name of your grocer ?
2. — does a shepherd walk with his sheep ?
- 3 — does a butcher wear an apron ?
4. — does a sweep call at a house ?
5. — makes bread ?
6. — man sits cross-legged at his work ?

The children must write and complete the above sentences with the appropriate words.

III * Sentence making.

Tell why the wolf went into the sheep fold.
Tell how the shepherd found the wolf
Tell what the shepherd did to the wolf

7—THE ELVES AND THE COBBLER

PART I

INTRODUCTION

EXPLAIN the meaning of *forest*. Note that Hans is a German name. In many districts wooden shoes will be unknown, the teacher should give a description of them. Probably most children will know something of the cobbler, but make sure of this before beginning the story. Let a child pretend to be a cobbler

STORY

Far away in a German forest lived Hans, the cobbler. He and his wife found it hard to live, for all the country people round wore wooden shoes, only a few with plenty of money bought shoes made of leather. At last Hans found he had no food and no money, and only just enough leather to make one pair of shoes. Before going to bed one night he said to his wife, "I will cut out this pair of shoes ready to make in the morning." He cut out the leather very carefully and left it on the table.

When Hans came down early to work, what was his surprise to find the shoes already beautifully made, lying on his table! A customer came in and gave him a good price for the shoes. "Here, wife," said he, "take this money and go out and buy enough leather to make two pairs of shoes, and buy food with the rest of the money."

Hans cut out the two pairs, and went to bed leaving the leather on the table as before. Next morning he found the two pairs of shoes on the table finished. These he sold during the day, and bought enough leather for four pairs, which he cut out and left on the table when he went to bed. Next morning, four pairs of shoes were on the table. So it went on: Hans cut out a large number of shoes each night, and next morning they were all finished. Hans got more and more money, and at last became a rich man.



ORAL WORK

What does the beginning of the story tell you ?

What does the middle of the story tell you ?

What does the end of the story tell you ?

Why was Hans so poor ?
 Why was Hans surprised when he came
 down one morning ?
 What did he do before he went to bed ?
 Retell the story.
 Children ask questions

WRITTEN WORK

I. Children's drill.

Write your name. Write the day of the week. Write the name of the month. Write the date. Write the name of the story.

Dictation.—When Hans came down early to work, what was his surprise to find the shoes already beautifully made, lying on his table !

II Exercises on sentence making and descriptive words.

A Write the following on the blackboard :
forest, cobbler, country, people, plenty of money, table, customer

1. Where did Hans live ?
2. What was Hans ?
3. Who wore wooden shoes ?
4. Who bought leather shoes ?
5. Where did Hans put the shoes at night ?
6. Who came to buy the shoes ?

The children must write answers to the above questions

B Write the following on the blackboard
shoes, boots, leather, cobbler, nails, laces, slippers, knife, table

Black, red, high, brown, hard-working, iron, steel, cotton, wooden.

The children write one word from the second list with an appropriate word from the first list, e.g. black shoes, red slippers

III * Sentence making.

Tell why Hans was poor
 Tell how Hans became rich
 Tell of something else you have heard about elves

8—THE ELVES AND THE COBBLER

PART II

INTRODUCTION

CHILDREN will probably have heard in the infant school a good deal about elves, and they will be ready and anxious to draw two of them. Let the children repeat together the elves' words. It should be remembered that up to the age of nine children delight in simultaneous repetition. (It is not now considered wrong to let children repeat the multiplication tables simultaneously.)

STORY

At last Hans said to his wife, "To-night we will hide ourselves behind the window curtain and watch all night, to see who makes the shoes so well."

At midnight, they saw two little elves jump on the table. They began to sew the shoes so quickly that Hans could not follow the movements of their hands. All the shoes were finished very quickly and the little men went away.

Next day, Hans' wife said to him, "These two tiny elves have made us rich. Let us do something for them. I will make them little suits of clothes, and you can make them some shoes."

"Right gladly will I make shoes for the little men," cried Hans, delighted. "Wife, you always think of the right thing to do."

Both Hans and his wife worked very hard, and finished two smart little suits and two neat little pairs of shoes. These they left on the table, and hid themselves again behind the curtain to watch.

When the elves came again the next night to make more shoes, they were very surprised to find on the table, instead of leather, the smart little suits, and the neat little shoes for themselves. At once they put

on all their new things and danced about merrily, singing,

"Spick and span and smart are we;
Cobbler's elves no more we'll be"

They hopped about over the chairs, over the tables, over the window sill, and out of the window, and they never came back again. But Hans and his wife were well off and happy for the rest of their lives.

ORAL WORK

What does the beginning of the story tell you?

What does the middle of the story tell you?

What does the end of the story tell you?

What did the cobbler and his wife see at midnight?

What did the cobbler's wife do for the elves?

What did the elves do when they saw the clothes?

Retell the story

Children ask questions

3. His wife said, "These tiny — have made us rich"

4. His wife said, "I will make them —"

5. Hans said, "Wife, you always think of the — thing to do"

The children must write and complete the above sentences, using words from the given list.

B. Write the following on the blackboard

1. wear, Boys, coats

2. frocks, wear, Girls.

3. the, from, tailor, buy, Men, clothes.

4. are, of, cotton and wool, made, Shirts.

5. made, are, of, linen, Collars

The children must make the groups of words into sentences

III * Sentence making.

Tell what Hans and his wife saw at midnight

Tell what Hans and his wife did for the elves

Tell what the elves did when they saw the clothes and the shoes.

WRITTEN WORK

I. Children's drill.

Write your name Write the day of the week. Write the month of the year. Write the date. Write your own address

Dictation —

"Spick and span and smart are we,
Cobbler's elves no more we'll be."

II. Exercises on conversations and name-words.

A. Write the following on the blackboard.
hide, right, elves, shoes, suits of clothes.

1. Hans said, "To-night we will — ourselves."

2. Hans said, "We will see who makes the —"

9—THE THREE WISHES

INTRODUCTION

ONLY a few children will have seen a black pudding, but this is easily explained as a large black sausage (A black pudding is made of blood, suet, chopped liver, etc., thickened with meal)

STORY

One winter evening an old man and his wife were sitting by the fire, and they began to talk about fancies. "I wish a fairy would come here to-night," said the man, "and give us whatever we ask" At that instant a lovely lady appeared out of the fire "I am a fairy," she said, "and I will grant you three wishes"

"That is splendid," said the old man
"Wife, let us think hard, and decide what
our wishes shall be."

"Yes, indeed," said his wife, "but let us
first make a good fire to warm us while we
are thinking." She poked the logs into a
blaze as she spoke. "That is a nice fire," she
said, without thinking what she was saying.
"I wish we had a yard of black pudding
for our supper. We could cook it easily."

She had hardly said these words when
down the chimney came tumbling a yard
of black pudding.

"You silly wife," cried the old man, "you
have wasted one of our wishes. I am so vexed
with you that I wish the black pudding
would stick fast to the tip of your nose."

Up jumped the pudding, and in a second
it was stuck so fast to the old woman's nose
that she could not pull it off.

"Oh, you cruel old man," she cried,
"your wish was even more foolish than mine.
Whatever shall I do?"

The old man could not help laughing to
see the pudding sticking to his wife's nose.
When he had finished laughing he said,
"There is only one thing to do. I wish that
the pudding may drop off again."

As he spoke, the pudding dropped off, so
they cooked it and had a merry supper.



ORAL WORK

What does the beginning of the story
tell you?

What does the middle of the story tell
you?

What does the end of the story tell you?

Why did a fairy come to visit the old
man and his wife?

Why did a black pudding tumble down
the chimney?

Why did the pudding stick to the old
woman's nose?

Retell the story.

Children ask questions.

WRITTEN WORK

I Children's drill.

Write your name. Write the day of the
week. Write the month of the year. Write
the date. Write your own address. Write
the title of the story.

Dictation—"I am so vexed with you
that I wish the black pudding would stick
fast to the tip of your nose."

II Exercises on conversations and capital letters.

A. Write the following on the blackboard

1 The man said, "I wish a fairy —"

2 The lovely lady said, "I am —."

3 The old woman said, "I wish we had
a —."

4 The old man said, "I wish the black
pudding would stick —."

The children must write and complete
the above sentences.

B. Write the following on the blackboard:
man, woman; boy, girl, son, daughter;
husband, wife, elf, fairy.

The children must write a proper name for
each of the above words, e.g. John, Mary,
Jim, etc.

C. Write the following on the blackboard

1 john smith has gone to london.

2. mrs brown gave mary a doll.

3. i shall call my elf robin goodfellow.

4. mrs jones calls her son ted, and her
daughter jane.

5 mr williams gave henry a book called
alice in wonderland.

The children must write the above sen-
tences correctly.

III * Sentence making.

Tell why the black pudding fell down the chimney

If you had three wishes for what would you wish?

10—WASHING THE NEGRO

A RICH man once had many slaves. They had to wait on him, cook his food, and keep his house clean and tidy. He treated them kindly, and expected them always to keep themselves as neat and fresh as they kept the house. One day a friend sent him a new slave as a gift. The new slave was a negro boy, with a black skin. The master had never seen a negro before, and held up his hands in horror when he looked at him.

"What a dirty boy!" he cried. "He cannot have washed for months! Slaves, put him into a tub of water, and scrub him clean and white."

The slaves carried off the black boy, and put him into a large tub of water. Then they scrubbed and scrubbed him, but of course they could not make him white. The poor negro shivered with cold in the bath, caught a bad chill, and died a few days later.

Many people try to do impossible things because they know no better.

ORAL WORK

What does the beginning of the story tell you?

What does the middle of the story tell you?

What does the end of the story tell you?

Why did the rich man have the negro washed?

Was the negro clean or dirty?

Why were the servants unable to wash the negro white?

Retell the story

Children ask questions

WRITTEN WORK

I Children's drill.

Write your name. Write the day of the week. Write the month of the year. Write the date. Write your own address. Write your father's name. Write your mother's name.

Dictation—Then they scrubbed and scrubbed him, but of course they could not make him white.

II. Exercises on descriptive words.

A Write the following on the blackboard *rich, clean, many, tidy, neat, new, black, fresh, dirty, large, white, bad*.

1. A — man had — slaves.
2. They kept his house — and —.
3. They had to keep themselves — and —.
4. A friend sent him a — slave.
5. The slave had a — skin.
6. The man called him a — boy.
7. The servants tried to scrub the negro —.
8. They put him in a — tub of water.
9. He caught a — cold.

The children must write and complete the above sentences, using words from the given list.

B Write the following on the blackboard, first letting the children select the words of opposite meaning *rich, poor, many, few, clean, dirty, tidy, untidy; new, old; black, white, large, small*. When the words have been carefully considered clean the blackboard and proceed with the next exercise.

C Write the following on the blackboard.

1. A rich man has much money, a — man has little.
2. Many children have brown eyes, — have blue eyes.
3. It is better to be — than dirty.
4. A tidy house looks far better than an — one.

- 5 New boots often squeak, — boots do not
- 6 — people live in Africa, white people live in England
- 7 A giant is —, a dwarf is —.

The children must write and complete the above sentences

III * Sentence making.

Tell why the rich man had the slave scrubbed.

Tell your own story of the servants scrubbing the negro.

Tell how you wash in the morning.

11—THE FOX AND THE KITTEN

INTRODUCTION

THERE is a blackboard sketch of the fox on page 189. It will be necessary to explain the reflection of the moon looking like a cheese in the water. Tell the children of the characteristics of the fox, there is nothing in this story about its artfulness, so the point can be left until another occasion

STORY

One bright moonlight night a hungry fox came out of his den to look for his supper. He was prowling round a farmhouse when he met a tiny kitten.

"You're not much of a supper, you poor little mouthful," he said, "but since anything is better than nothing, I shall make a meal of you."

"Oh, don't eat me!" cried the kitten. "I will show you where the farmer keeps his cheeses, and you can eat them instead."

The clever little animal led the fox to the edge of the well, over which hung two buckets. When one bucket was let down into the water to be filled the other came up.

"Now look in here," she said, "and you will see the cheeses."

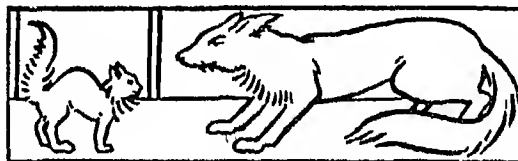
The fox looked down into the well, and saw the round face of the moon shining on the water.

"I see a cheese," he said, "but how am I to reach it?"

"In this way," replied the kitten, jumping into one of the buckets. The bucket at once went down into the water, but the kitten scrambled out before the water splashed in, and climbed a little way up the rope from which the bucket hung.

"Now," she called out to the fox, "you get into the other bucket."

The fox did as he was told, and as he was much heavier than the kitten, her bucket shot up again to the top of the well, while the bucket with the fox in it disappeared under the water. Thus the fox was drowned, while the clever little kitten escaped.



ORAL WORK

What does the beginning of the story tell you?

What does the middle of the story tell you?

What does the end of the story tell you?

Why did the fox not eat the kitten?

Why did the fox go down the well?

How did the fox go down the well?

Why couldn't the fox get up again?

Retell the story.

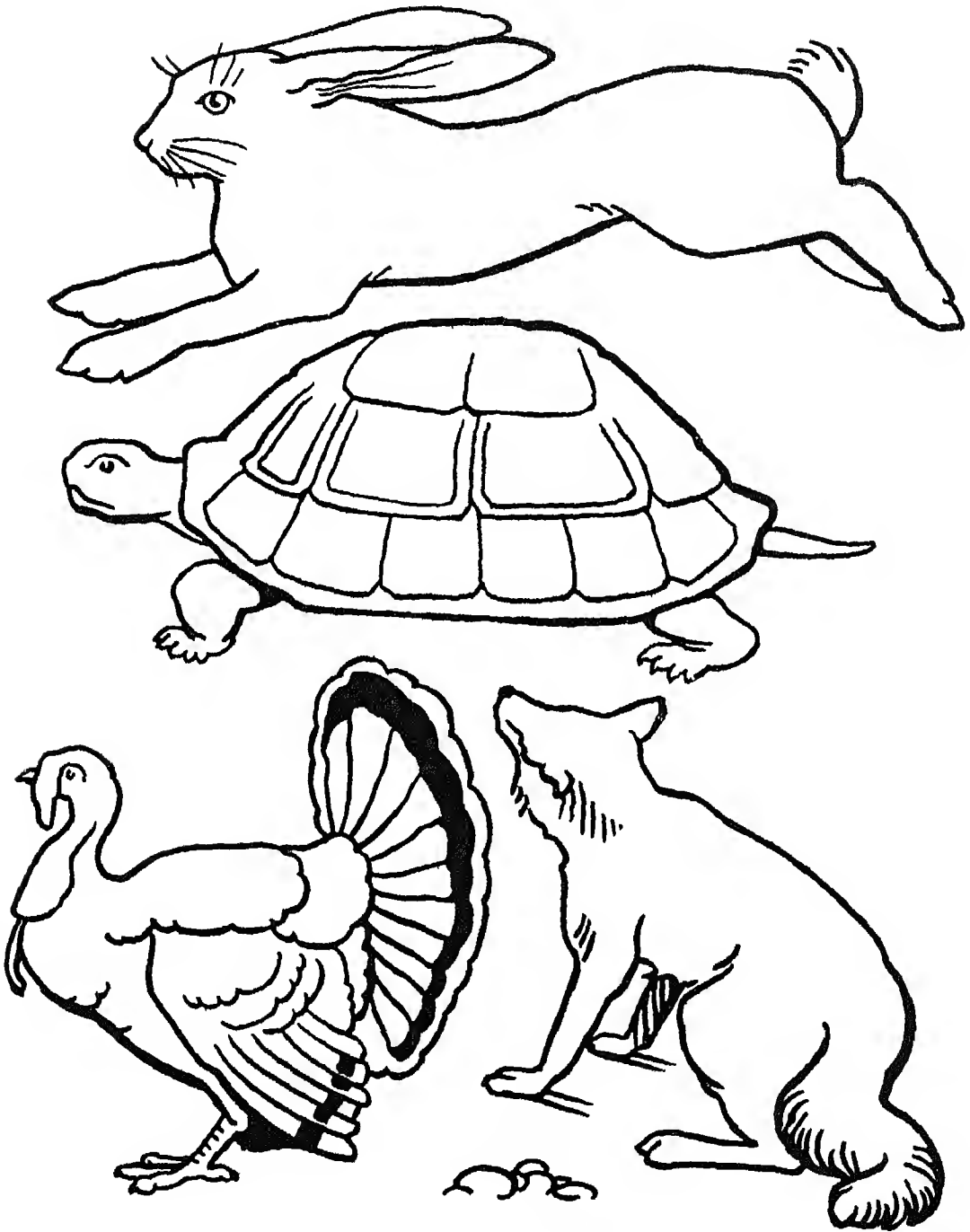
Children ask questions.

WRITTEN WORK

I Children's drill.

Write your name. Write the date.
Write your address. Write the name of a boy. Write the name of a girl. Write the name of the school.

SKETCHES FOR THE BLACKBOARD



HARE AND TORTOISE—SEE PAGE 175
FOX—SEE PAGE 188
TURKEY—SEE PAGE 199

Dictation—The clever little animal led the fox to the edge of the well, over which hung two buckets.

II. Exercises on descriptive words and name-words.

A Write the following on the blackboard: *night, fox, kitten, mouthful, animal, face.*

The children must put a describing-word before each of the above

Those in the story are. *moonlight night, hungry fox, tiny kitten, little mouthful, clever little animal, round face*

B Write the following on the blackboard. *morning, evening, night, supper, dinner, tea, breakfast, cheese, bread, butter, cabbage, meat, flour, milk*

1. Supper is eaten in the (morning, evening, night)
- 2 At midday many people have (supper, dinner, tea).
- 3 Children of ten have (cabbage, milk, meat) for breakfast
- 4 A round cheese is the shape of a (ball, pig, table)
5. Bread is made of (carrots, grass, flour).
- 6 A cow gives us (butter, cheese, milk).

The children must write and complete the above sentences with the appropriate words from the given list

III * Sentence making.

Tell what the kitten showed the fox

Tell why the kitten was not drowned in the well

Tell why the fox was drowned in the well

12—THE DISCONTENTED DONKEY

INTRODUCTION

THIS story can be read to country children without any preliminary remarks, but town children may know little of the seasonal occupations on

a farm The different scenes offer excellent scope for imaginative drawing

STORY

One cold winter's day a donkey was standing in his shed He was shivering and grumbling to himself "I wish the weather were warmer, so that I could leave this cold shed," muttered he. "It would not be so bad if only there were fresh grass to eat instead of this dry hay."

By and by the warm spring came The donkey was taken out of the shed and harnessed to his cart. He had to draw sacks of seed to the cornfield "This is hard work," he grumbled again "How I wish that the hot summer had come."

Summer came, and now the donkey had to carry hay to the stacks and vegetables to the barn from morning till night "I am worse off than ever, toiling along in this heat," he groaned. "Oh for the autumn to come!"

Autumn soon set in, but still the donkey grumbled. Now he had to carry corn to the granary, apples to the storehouse and winter fuel to the woodshed At last he began to long for the winter again "For," said he, "even if I do not have much to eat at least I am able to rest."

Some folks are never content

ORAL WORK

What does the beginning of the story tell you?

What does the middle of the story tell you?

What does the end of the story tell you?

Why did the donkey grumble in winter?

Why did the donkey grumble in spring?

Why did the donkey grumble in summer?

Why did the donkey grumble in autumn?

Retell the story.

Children ask questions

WRITTEN WORK

I. Children's drill.

Write your name Write the date. Write the name of your school. Write the names of the seasons.

Dictation—Summer came, and now the donkey had to carry hay to the stacks and vegetables to the barn from morning to night

II. Exercises on verbs and phrases.

- A. Write the following on the blackboard
- 1 Donkeys (lift, push, draw) carts
2. The rain (snows, falls, melts) all day
3. The sun (jumps, shines, twinkles) in the sky.
- 4 Apples (bloom, fall, grow) on trees.
5. Cars (run, walk, trot) down the road.
6. Donkeys (bray, bark, low) very loudly.

The children must write the above sentences correctly.

B Write the following on the blackboard:
round the field, in the shed, across the pond, down a rabbit hole; up a tree; in the meadow.

1. The donkey was standing —.
- 2 The farmer trotted on his horse —.
3. His cat climbed —
4. His ducks swam —
5. His dog burrowed —.
- 6 His children picked flowers —.

The children must write and complete the above sentences with the appropriate phrases

C. Write the following words on the blackboard. *on; upon; under; over; in; out; above, below, up; down.*

The children must write sentences each containing one of the above words

III.* Sentence making.

Tell why the donkey is called discontented

Tell what the donkey had to do in autumn.

Tell of some work you have seen a donkey do

13—THE CRAFTY FARMER AND THE DWARF

INTRODUCTION

THE children will probably already be familiar with stories of dwarfs, but it is as well to ascertain by asking one or two questions. In town schools see that children understand that the corn comes from the ears at the top of the stalks and that carrots grow below ground. Unless these points are clearly fixed the story is meaningless. Corn and carrots will be excellent for drawing in colour

STORY

A farmer once owned a grassy hillside and began ploughing it ready for planting corn. To his surprise, a dwarf suddenly popped up out of the ground, and said angrily, "What do you mean by stamping on my roof and waking me up?"

"Forgive me, sir," said the farmer, "I did not know your house was under this hill. I am doing a good thing for us both, though, in growing crops on the hillside."

"I don't see that," said the dwarf

"Let me explain, then," replied the farmer. "I will do all the work. Then at the end of the first year I will take what is above the ground, and you shall have what is below the ground."

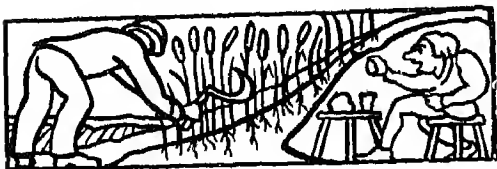
"Well, and what is to happen in the second year?" asked the dwarf.

"Oh," replied the farmer, "at the end of the second year you shall have what grows above the ground, and I will take what is below."

"That seems quite fair," said the little man. "Very well, I agree."

The cunning farmer, however, tricked the dwarf after all. He planted wheat the first year, and took all the grain, which of course was at the top of the stalks, leaving only the useless roots for the dwarf. When the second year came the farmer planted carrots,

and, as these grow under the ground, he carried them away for himself, while the dwarf had nothing but the green carrot tops.



ORAL WORK

What does the beginning of the story tell you?

What does the middle of the story tell you?

What does the end of the story tell you?

Why was the dwarf angry with the farmer?

What did the farmer promise the dwarf?

Why is the farmer called cunning?

Retell the story

Children ask questions.

WRITTEN WORK

I. Children's drill.

Write your name Write the date. Write your own address. Write the name of the school Write the title of the story

Dictation — "Oh," replied the farmer, "at the end of the second year you shall have what grows above the ground, and I will take what is below"

II. Exercises on words of opposite meaning and on writing questions.

A Write the following on the blackboard
above, up, slowly, softly, gently, outside

- 1 Below the ground are the roots, — the ground are the flowers.
2. Seeds grow quickly, but trees grow —.
- 3 When you climb a tree always look —, never look down.
4. The flower was yellow inside and blue —
- 5 The bees hummed —, the dogs barked loudly

- 6 The dwarf spoke roughly, the farmer answered —.

The children must write and complete the above sentences with the appropriate words

B. Write the following words on the blackboard: *what, why, who, where, which, when.*

1. "— are you?" said the farmer to the dwarf.
2. "— do you mean by stamping on my roof?"
- 3 — did the farmer grow carrots the second year?
4. — are you digging up your carrots?
- 5 — of the flowers do you like best?
6. — does a wild rabbit live?

The children must write and complete the above sentences with the appropriate words

C. The children must make *complete* sentences of their own to answer the questions in B

III * Sentence making.

Tell why the farmer was surprised.

Tell what the farmer promised the dwarf

Tell how the farmer cheated the dwarf.

14—A PIG

ONCE upon a time there was a big pig, who was covered with long prickly bristles and did nothing but eat from morning till night For fun he used to wallow in a muddy gutter, and when he came out again his shaggy coat was dripping with dirt, and nobody liked to have anything to do with him But this did not trouble him, for he cared for nobody, and never did a thing to try and please anyone.

"What a nasty thing he is," said a child; "he never washes himself in clean water nor uses soap. He does not brush his hair or clean his teeth, and he runs about in his dirty coat on Sundays as well as on weekdays. I wonder if some day he will be punished for behaving so badly."

And so he was! One day the butcher killed that pig, scalded off his coat with boiling water, and sold the bristles to the brush-maker, who was a clever man, and preached the dead beast a sermon. "You have done nothing all your life but eat—now you shall be eaten in your turn. As sausages and ham you shall be smoked, as pork and chops you shall come into the kitchen, where it will be made hot enough for you. You have been a pig all your days, you have always had dirty bristles, and never thought of making yourself pleasant. Now those very bristles shall help to make people clean from the top of their heads to

the soles of their feet. We will make of them hairbrushes, clothes brushes, tooth-brushes, and shoe brushes. You would not clean yourself, but you shall help to clean others!"

ORAL WORK

What does the beginning of the story tell you?

What does the middle of the story tell you?

What does the end of the story tell you?

Why did the child call the pig *nasty*?

How was the pig punished?

How was the dead pig made useful to people?

Retell the story.

Children ask questions

WRITTEN WORK

I. Children's drill.

Write your name. Write the date. Write your own address. Write your father's name. Write your mother's name. Write the title of the story.

Dictation.—As sausages and ham you shall be smoked, as pork and chops you shall come into the kitchen, where it will be made hot enough for you.

II Exercises on adjectives and sentence making.

A. Write the following on the blackboard.

muddy, shaggy, prickly, clean, nasty, clever

1. The pig was covered with — bristles.
2. He used to wallow in a — gutter.
3. His — coat was dripping with dirt.
4. "What a — thing he is," said a child.



5. He never washes in — water
6 The brush-maker was a — man

The children must write and complete the above sentences, using words from the given list

B Write the following on the blackboard:

- 1 pig, did, The, but, eat, nothing
2 used, wallow, to, He, in, mud
3 butcher, pig, the, killed, The.
4 his, off, coat, scalded, He
5 bristles, the, He, sold
6 a, sermon, He, the, beast, dead, preached.

The children must arrange and write the above words in proper sentences

III * Sentence making.

Tell why the child did not like the pig.

Tell what you can about pork and chops, sausages and ham

Tell what you can about brushes.

15—THE THIEF FOUND OUT

ONCE a merchant had an only son, named Said. The father wished his son to carry on his business carefully. Soon the father found out that Said trusted one of his young friends too much. He felt sure that his son's friend had cheated Said several times without being found out.

One day the merchant and his son had to go away on business. The merchant said to Said, "Whom can we trust with our money while we are away?"

"My friend is the most honest man in the town," replied the son. "Let him take care of the money, father."

"I think you are mistaken in your friend, my son," said the merchant.

"Oh no, father, you do him wrong. He would never rob anyone," replied Said.

"Well," answered the merchant, "I will take your word for it, and trust your friend with the money." Then he gave to the

friend a large heavy strong-box, fastened with three locks. This the friend was to take care of while the merchant and his son were away.

When Said and his father came back, the merchant said to his son, "Now go and get the strong-box from your friend."

Said returned very quickly, crying, "What have you done, father? My friend is furiously angry. He says you have insulted him. You gave him only broken stones to take care of in the strong-box."

The merchant placed his hand on his son's shoulder. "How did your friend know that there were only broken stones in the strong-box?" said he. "He must have forced open the three locks and searched inside. Yet the box was not his. That was a thievish thing to do. Now, don't you think I was right not to trust him?"

"Father, you were quite right," Said replied. "I see now that you are far wiser than I am. I shall not disagree with you again."



ORAL WORK

What does the beginning of the story tell you?

What does the middle of the story tell you?

What does the end of the story tell you?

What did the father think of his son's friend?

What did the son think of his friend?

Why did the father put stones into the strong-box?

How did the son know that his friend was a thief?

Retell the story.

Children ask questions

WRITTEN WORK

I. Children's drill.

Write your name. Write your address. Write the date. Write the names of the seasons. Write the title of the story.

Dictation — The merchant placed his hand on his son's shoulder. "How did your friend know that there were only broken stones in the strong-box?" said he.

II. Exercises on conversations and capital letters.

A. Write the following on the blackboard. *strong-box, friend, stones, word, stones, money.*

1. The merchant asked, "Whom can we trust with our —?"
2. "My — is honest," replied the son.
3. "Well," answered the merchant, "I will take your — for it."
4. The merchant said, "Now go and get the — from your friend."
5. Said cried, "You gave him only broken — to take care of."

The children must write and complete the above sentences using words from the given list.

B. Write the following on the blackboard:

1. have you heard about pip, squeak and wilfred?
2. little tommy tucker sang for his supper.
3. simple simon met a pie-man.
4. the baby's name is kate jane smith.
5. have you seen father christmas?
6. there are elephants at the zoo in london.

The children must write the above sentences correctly.

III * Sentence making.

Tell what the beginning of the story is about.

Tell why the merchant put stones into the strong-box.

Tell what the end of the story is about.

16--THE MERMAID OF LIZARD HEAD

LIZARD HEAD is a great mass of rock running out into the sea off the south-west coast of England. Not very far away from here there once lived a farmer, whose name was Lutey. One summer's evening he was walking by the seashore when he heard the sound of sobbing. After he had searched for some time, he found a beautiful mermaid, weeping because the tide had carried her on to the rocks and left her there. She wanted to get back to the sea, but could not, because her tail was useless on land. Lutey took her in his arms, and carried her down to the edge of the water.

"Come with me," whispered the mermaid, "and let me show you the wonders under the sea." So sweet and coaxing was her voice that the farmer would have dived into the blue waters there and then, had not his dog barked behind him. He turned and saw the smoke rising from the chimney of his farmhouse, and the green fields that lay around it, and he felt that he could not leave his home.

"Farewell then," said the mermaid, "but in ten years' time I shall come for you again."

Ten years passed, and one moonlight night Lutey went fishing in a little boat. The sea was calm, but suddenly a great wave came rolling toward him, bearing on its crest the lovely mermaid, who stretched out her white arms to him.

"My time has come," said the farmer. He plunged into the sea beside the mermaid and sank with her down, down into the deep, never to be seen again.

ORAL WORK

What does the beginning of the story tell you?

What does the middle of the story tell you?

What does the end tell you?

What did the farmer do to help the mermaid ?

What did the mermaid say to the farmer ?

Why did the farmer plunge into the sea ?

Retell the story.

Children ask questions.

III * Sentence making.

Tell how the farmer found the mermaid.

Tell why the mermaid was sobbing.

Tell why the farmer did not go at once with the mermaid.

Tell what you think the farmer saw at the bottom of the sea.

WRITTEN WORK

I Children's drill.

Write your name. Write your address. Write the date. Write the names of your grocer and milkman. Write the title of the story

Dictation — So sweet and coaxing was her voice that the farmer would have dived into the blue waters there and then, had not his dog barked behind him.

II. Exercises on verbs and phrases.

A Write the following on the blackboard:
carried, sobbing, walked, was rising, came rolling, whispered, plunged, stretched out

- 1 The farmer — by the seashore.
- 2 He heard the mermaid —.
3. The tide — her on to the rocks
4. "Come with me," — the mermaid
- 5 The smoke — from the chimney.
- 6 A great wave — toward him
- 7 The mermaid — her white arms.
- 8 The farmer — into the sea

The children must write and complete the above sentences, using words from the given list.

B Write the following on the blackboard:
into the sea, by the seashore, on to the rocks, in his arms, under the sea, from the chimney, in a little boat.

The children must write sentences each containing one of the above phrases.

17—THE OLD DAME OF MOROCCO

LONG ago there lived in Morocco an old dame who had no children. She found her life so lonely that she went to a wise man and asked where she could find some happy children to live with her. The wise man said, "Take your basket and fill it with the dates growing on your palm tree in the garden. Put the basket by your kitchen fire and go to church and pray."

The woman did this, and when she came back the house was full of young men and maidens and merry children. The young men went out to work and brought back money for her, the maidens swept her house, shook her mats and cooked her rice, and the children laughed and played and made her very happy.

All went well for many months. Sometimes, however, the shouts and games of the children made her bad-tempered, and one day the old dame flew into a rage because the children in their play had upset a bowl of milk in her kitchen. She cried out, "I wish I had never seen you, you silly children of a tree," and she rushed angrily out of the house.

When she came back the house was empty and silent. The merry children had gone, the pretty girls were not there to cook her rice, and the fine young men who worked so well had all disappeared. Now the woman was very sorry. She went to the tree once more and there she saw the dates growing again. She put out her hand to take the fruit, but jumped back again with a scream. All the dates had turned into

eyes and were staring at her! The old woman was terrified. She ran away howling all down the road, and never came back again.



ORAL WORK

What does the beginning of the story tell you?

What does the middle of the story tell you?

What does the end of the story tell you?

Why did the old dame go to a wise man?

What did the wise man tell the old dame to do?

What made the old dame bad-tempered?

Why was the house empty when the old dame returned home?

Retell the story.

Children ask questions.

WRITTEN WORK

I. Children's drill.

Write your name. Write the name of the school. Write the date. Write the day of the week. Write the month of the year. Write the title of the story.

Dictation.—The merry children had gone; the pretty girls were not there to cook her rice, and the fine young men who worked so well had all disappeared.

II. Exercises on verbs and conversations.

A Write the following on the blackboard.
swept, shook, cooked, laughed, played, rushed, jumped.

The children must write sentences each containing one of the above words.

B. Write the following on the blackboard

1. The wise man said, "Take your — — — dates"

2. The wise man said, "Put the basket — — — fire."

3. The old woman said, "I wish — — — you"

The children must write and complete the above sentences.

C Write the following on the blackboard.

1. Mother said, " ."

2. Teacher said, " ."

3. My father said, " ."

The children must write and complete the above sentences in any way they like

III.* Sentence making.

Write sentences containing these groups of words: *merry children, pretty girls; fine young men.*

Tell how the old dame's house became full of children

Tell what the children did for the old dame.

Tell why the children left the house.

18—THE RICH MAN'S DIAMOND

ONCE a rich man had a very poor neighbour. A fortune teller came to the rich man and said, "All your treasures and gold will one day belong to your poor neighbour."

The rich man was troubled to hear this. "What shall I do," he said to himself, "to keep all my money safe?" It was a great worry to him to think that the poor man might one day get all his gold. For a long time the rich man thought and thought over what could be done.

At last he said to himself, "I will sell everything and buy the finest diamond I can find." Then he sold all he had, and

bought a splendid diamond with the money. He thought, "This gem is worth the whole of my fortune; it will be safe if I sew it in my turban." He therefore sewed it in his turban, and felt happy at last. "Now my poor neighbour can never get my diamond," said he.

Some months afterwards, the rich man was at sea, and a strong wind blew off his turban into the water. He could not reach it, and as the turban sank to the bottom he said to himself, "Alas! I have lost my diamond, but at all events my poor neighbour can never get it."

A few days later the poor man went fishing and caught a fine fish. When he cut the fish open, he found the rich man's diamond which the fish had swallowed. Thus, in the end, the fortune teller's words came true.

ORAL WORK

What does the beginning of the story tell you?

What does the middle of the story tell you?

What does the end of the story tell you?

Why was the rich man troubled?

Why did the rich man spend all his money to buy a diamond?

How did he lose his diamond?

Have you ever seen a turban?

Do Englishmen wear turbans?

In what part of the world do men wear turbans?

Retell the story

Children ask questions

WRITTEN WORK

I Children's drill.

Write your name Write the date Write the school address Write your mother's name Write your father's name. Write the title of the story

Dictation—He thought, "This gem is worth the whole of my fortune, it will be safe if I sew it in my turban."

II Exercises on conversations.

A. Write the following on the blackboard:

1. a fortune teller said all your treasures will one day belong to your poor neighbour
- 2 what shall I do? he said to himself.
- 3 he said, I will sell everything and buy the finest diamond I can find.
- 4 he said to himself, alas! I have lost my diamond

The children must write the above sentences correctly

B Write the following on the blackboard:

- 1 I said to my friend, " "
- 2 My friend said to me, " "
3. The grocer said to Tom, " "
- 4 Tom said to the grocer, " ."

The children must write and complete the above sentences in any way they like.

III * Sentence making.

Tell what the fortune teller told the rich man

Tell what the rich man said to himself.

Tell how the rich man lost his diamond

Tell how the poor man became rich

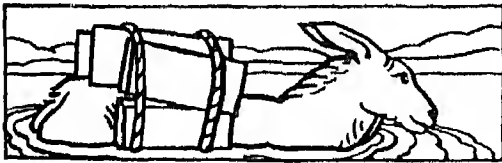
19—THE DONKEY, THE SALT, AND THE SPONGES

ONCE a man had a lazy donkey who did not like work. One day his master loaded him with large blocks of salt, and began to drive him to market where the salt was to be sold. On the way, they came to a narrow wooden bridge across a stream. As they were going over the bridge the donkey stumbled and fell into the water, which wetted him up to his neck. The water melted the salt and washed most of it away, so that when the donkey scrambled out again, his load was all gone.

His master took him home and loaded him with salt once more. Then they set out a

second time. When they came to the bridge the cunning donkey thought, "I don't want to go to market. I would much rather stay in the green meadow. I will get rid of this load as I did before." So he purposely slipped off the bridge into the stream, waited till the water had melted the salt and then scrambled out again.

"You bad rascal!" cried his master, who saw that the lazy donkey had tricked him. "I will teach you a lesson!" He drove the donkey home again and loaded him this time with sponges. When the donkey came to the bridge, he fell into the stream as before. This time, however, the sponges soaked up the water so that when the donkey scrambled out, instead of having lost his load, he found it twice as heavy. This dragging, wet burden he had to carry all the way to market. The water ran along his backbone, and squirmed from the sponges as they jolted. He was tired out and wretched when the market was reached. "I will never try that trick again," he promised himself; and that promise was kept.



ORAL WORK

What does the beginning of the story tell you?

What does the middle of the story tell you?

What does the end of the story tell you?

Why did the donkey fall into the water the first time?

Why did the donkey fall into the water the second time?

Why did the master load his donkey with sponges?

Retell the story

Children ask questions

WRITTEN WORK

I Children's drill.

Write your name. Write the date. Write the days of the week. Write the names of the first six months of the year.

Dictation—This time, however, the sponges soaked up the water so that when the donkey scrambled out, instead of having lost his load, he found it twice as heavy.

II. Exercises on words of opposite meaning and phrases.

A. Write the following on the blackboard let the children select the words of opposite meaning: *lazy, hard-working; large, small, narrow, wide, bad, good, wet, dry.*

The children must now supply suitable name-words to each of the above, e.g. *lazy donkey, hard-working horse*

B. Write the following phrases on the blackboard: *on the way, across a stream, over the bridge, into the water; up to his neck; to the bridge; in the green meadow; off the bridge.*

The children must write sentences containing the above phrases.

III * Sentence making.

Tell what happened when the donkey fell into the water the first time and the second time.

Tell what happened when the donkey fell into the water the third time.

Tell why the donkey promised never again to play tricks.

20 -ROBIN ROUND CAP

TIERIE was once a very naughty elf named Robin Round Cap. This elf lived in a farmer's house and played all kinds of pranks. He chased the turkeys and pulled out their tail feathers, turned the milk sour, frightened the baby in its

cradle by shouting "Bo!" and even pinched the farmer's nose as he lay asleep. "Whatever shall I do?" cried the poor man "This wicked elf worries me to death!"

At last he made up his mind to move into another house, and leave Robin Round Cap behind. He packed his goods on a cart, and drove away, hoping that he had rid himself for ever of the troublesome elf.

On the way, he met a neighbour who stopped to wish him good-day. "You are moving house, I see," he remarked.

"Yes, indeed we are," squeaked a little voice from the back of the cart. The farmer looked round and saw Robin Round Cap's cheeky face peeping out from among the pots and pans. He had jumped on to the cart when no one was looking and was moving house too.

"It is of no use going on," said the farmer, "I must think out another plan." He turned his horse round, and drove home again. That night he sent for a wise man, who caught the elf and shut him up in an empty well inside the house. There, so the country people tell, the naughty elf remains a prisoner till this day, and they call the place Robin Round Cap's Well.

(There is an illustration of a turkey on page 189.)

ORAL WORK

What does the beginning of the story tell you?

What does the middle of the story tell you?

What does the end of the story tell you?

How did the elf worry the farmer?

Why did the farmer move to find another house?

Why did the farmer go back to his own house?

Retell the story.

Children ask questions.

WRITTEN WORK

I Children's drill.

Write your name. Write the date. Write the names of three boys. Write the names of three girls. Write the names of the last six months of the year.

Dictation.—He chased the turkeys and pulled out their tail feathers, turned the milk sour, frightened the baby in its cradle by shouting "Bo!" and even pinched the farmer's nose as he lay asleep.

II Exercises on questions and answers.

A. Write the following on the blackboard.

What shall I do? The children must write six questions, each beginning with one of the following words: *Who, Which, Why, When, Where, What*.

B. Write the following on the blackboard:

Who is the king of England? Which story do you like very much? Why do you come to school? When are you going home? Where do you live? What is your father's name?

The children must write answers to the above questions.

C. Write the following verbs on the blackboard: *play, chase, pull out, frighten, pinch, worry, pack, squeak, drove, caught*.

The children must write sentences each containing one of the above verbs.

III * Sentence making.

Tell of the tricks played by the elf.

Tell what happened when the farmer met a neighbour on the road.

Tell how the place came to be called "Robin Round Cap's Well."

TWENTY ADDITIONAL SHORT STORIES FOR ORAL AND WRITTEN COMPOSITION

THE following stories are similar in character to those included in the previous set of lessons for composition. The language throughout is simple; each story, or part of a story, has been framed to show clearly the three fundamental parts of beginning, middle and end.



1. THE FOX AND THE CROW

A HUNGRY fox one day saw a crow sitting on a tree holding a piece of cheese in her beak. He at once made up his mind to obtain the dainty morsel for himself.

"Madam Crow," he said, "you are the most handsome bird I have ever seen. If your voice is as lovely as your feathers, you are the fairest creature in the world. Do let me hear you sing."

The silly crow was very proud to hear such words spoken of herself. She opened her mouth to sing and down fell the cheese. It was quickly snapped up by the cunning fox, who murmured to himself as he trotted away, "I said that she was *beautiful*, but I did not say that she was *wise*."

If we are vain and love flattery, we shall become foolish.

2. THE DOG IN THE MANGER

A MANGER is a large box into which a farmer puts hay for his cows to eat. One day, the manger in a cow shed had just been filled, when a dog

jumped into it, and settled himself on the hay. Every time a hungry cow came in for a feed, the dog snarled and snapped, and drove her away.

Presently an ox walked in for a few mouthfuls. "Gr-rr-rr," growled the dog, "be off! I'll bite you! Gr-rr-rr!"

"Why can't you let me eat the hay?" said the ox. "You can't eat it yourself."

"I don't care," barked the dog. "If I can't eat it myself, nobody else shall have it."

To be selfish is the worst fault we can have.

3. THE DOVE AND THE ANT

ONCE a dove was drinking by the side of a brook, when she saw an ant fall into the water. Pitying the struggling insect, the dove quickly pecked up a blade of grass and threw it into the water. The ant crawled on to the grass and so was saved.

Some time after this, a ragged and barefooted tramp came along. He carried a crossbow, for he was looking for food. As soon as he caught sight of the dove he was very pleased, and thought, "How good she will smell cooking in my pot!" Very quietly he took aim with his arrow to kill the dove, but at that moment the watchful little ant ran up and bit his heel. The man jumped with the pain, and turned round. This frightened the dove and she flew off out of danger.

"There goes my supper!" thought the man as he watched the dove fly away.

One good turn deserves another.

4. THE WIND AND THE SUN

THE North Wind and the Sun had a quarrel. Each thought himself stronger than the other. Neither would give way until the Sun noticed a

traveller wrapped in a long cloak climbing the side of a hill.

"Let us try our strength upon that man," he said. "Whichever of us can make him throw off his cloak is the stronger of the two."

"Very well," said the North Wind, "I will try first."

He puffed out his cheeks, and blew with all his might on the traveller, trying to tear his cloak from him. Instead of blowing it off, however, the icy gusts only made the man wrap his cloak more closely round his body to keep out the cold.

"Now it is my turn," said the Sun.

He smiled down upon the traveller. The sunshine beat upon the weary man till at last he grew faint with the heat.

"This is strange!" he said to himself. "A little while ago it was so bitterly cold that I was glad of my warm cloak. Now it is so hot that I really think I must throw it off."

He did so as he spoke, and the North Wind had to own that the Sun was stronger than himself.



5. THE WOODMAN AND HIS AXE

A WOODMAN was one day cutting down a tree by the riverside when his axe slipped from his hand. It fell into the river and sank to the bottom of the water. This was a heavy loss to the woodman, for he was too poor to buy a new axe and now had no way of earning his living.

As he was sitting sadly on the river bank, suddenly he saw a handsome young man by his side. It was Quicksilver, the messenger of the gods.

"Why are you so unhappy?" asked Quicksilver.

"I have dropped my axe into the river," said the woodman. "Now I can do no work, and my children will starve."

"Never mind, I will get it back for you," said Quicksilver. He dived into the river and brought up an axe made of gold.

"Is this your axe?" he asked.

"No, indeed," said the woodman. "my axe is made of iron."

Quicksilver dived again, and this time brought up a silver axe.

"Is this your axe?" he asked.

"Oh dear, no!" replied the woodman. "How could a poor man such as I am buy a silver axe? My axe is made of iron."

Quicksilver dived a third time, and brought up the woodman's own axe. "Is this your axe?" he asked.

"Indeed it is," cried the woodman joyfully, as he grasped his old friend once more.

"You are an honest woodman," said the messenger of the gods. "You might have claimed the other axes, which were worth more than yours, but you would not take anything that did not belong to you. Here is your reward. Take the golden and silver axes as well as your own," and he handed them over to the woodman.

Honesty is the best policy.

6. THE OAK AND THE REED

A GREAT oak tree once stood beside a pool of water. Its branches stretched far and wide, and its strong roots spread all round it under the earth. The oak was nearly a hundred years old, and very proud of its great age and strength.

At its feet, beside the pool, grew a thin and slender reed. It had no broad branches and no strong roots. When the wind blew, the reed bent this way and that, so that the oak laughed.

"You poor weak thing!" said the tree. "Even a gentle breeze makes you bend over and tremble. Look at me. Here I stand straight and strong, and the leaves growing thickly on my branches shield me from the cold."

One day a great gale began to blow. The reed bent down nearly to the ground, and its head dipped into the pool.

"Why do you not stand up against the oak?" shouted the oak. "See how firmly I stand. No wind can make me bend my back."

As it spoke a wild gust howled round the tree. There was an awful crash! The proud old oak that would not bend its back was torn up from the ground. There it lay, stretched on the earth, with its roots in the air.

When the storm had died away the thin reed stood alone beside the pool.

"Ah," it murmured, "I bend, but I do not break."

7. FOOLISH NEDDY

THE RE was once a man who was very fond of animals. He had two pets, a donkey called Neddy and a dog called Ruff. Neddy lived in a stable where he had plenty of oats and hay. Ruff was always with his master, who took him for walks, played at ball with him and taught him at meal times to sit up and beg for titbits of food.

Now Neddy grew jealous of little Ruff. "Why should I stay in my stable all day," he thought, "while Ruff is allowed to run in and out of the house and frisk about and lick my master's face? I will bark and play, too, and behave as Ruff does, and then they will make a fuss of me as well."

So he kicked up his heels and tried to bark. All that he could say was, "Hee-haw," and he looked so funny that everyone laughed. When dinner time came he ran into the house and tried to beg, as Ruff did. He sat up on his hind legs and turned down

his forelegs. Then he tried to romp with the children, but they were frightened and ran away. Foolish Neddy thought that this was all part of the game, and he made more noise than ever.

He ran to his master and, putting out his great tongue, licked his face. Then he did the strangest thing of all. He jumped into his master's lap!

The mistress screamed, the master shouted, and the servant ran in with a thick stick. The silly donkey was beaten, taken back to his stable and locked in. There he was left to think how foolish he had been, and to remember that only dogs may behave like dogs, and that donkeys must always behave as donkeys should.

8. THE FROG AND THE OX

A NUMBER of frogs once lived together in a pond. One of them was larger and fatter than all the rest. He was very proud of himself for being so big. He thought that he was the biggest frog in the world.

One day an ox came down to the pond to drink. As the great animal splashed into the water, all the frogs leaped away in fear. The ox drank as much as he wanted, and then went back to the meadow to graze.

All the frogs began talking about the ox. "What a very large frog came to the pond just now!" said one.

"Ah, but he was not so large as I am," said the biggest frog.

"Oh, indeed he was," cried all the other frogs. "He was much larger than you are."

The big fat frog began to puff himself out by taking in large breaths of air. When he was twice as large as he had been at first he said, "Croak! croak! Was the new frog bigger and fatter than I am now?"

"Very much bigger, very much fatter," cried the other frogs.

The big frog puffed himself out once more till it seemed as if he must burst. When

he was three times his proper size he said, "Croak! croak! Was the new frog bigger and fatter than I am now?"

"Very much bigger, very much fatter," replied the frogs.

The big frog grew very angry and puffed and swelled till he was four times as large as he ought to have been. Then he gasped out in a faint voice, "Croak! croak! Was the new frog bigger and fatter than I am now?"

"Yes! yes! still bigger and fatter than you are," croaked the frogs.

The foolish frog took one more breath. Puff! bang! He burst like a balloon, and was never seen again.

9. THE GOOSE THAT LAID THE GOLDEN EGGS

A LITTLE old man and a little old woman once lived together in a little old cottage. They were very poor, because the little old man was so lazy that he would not work hard enough to earn more than a few pence.

One day, when the old man and his wife were sitting at home with the door wide open to let in the warm sunlight, in waddled a very large goose. It found some straw in the corner and sat down there.

"I believe it is going to lay an egg," said the little old woman.

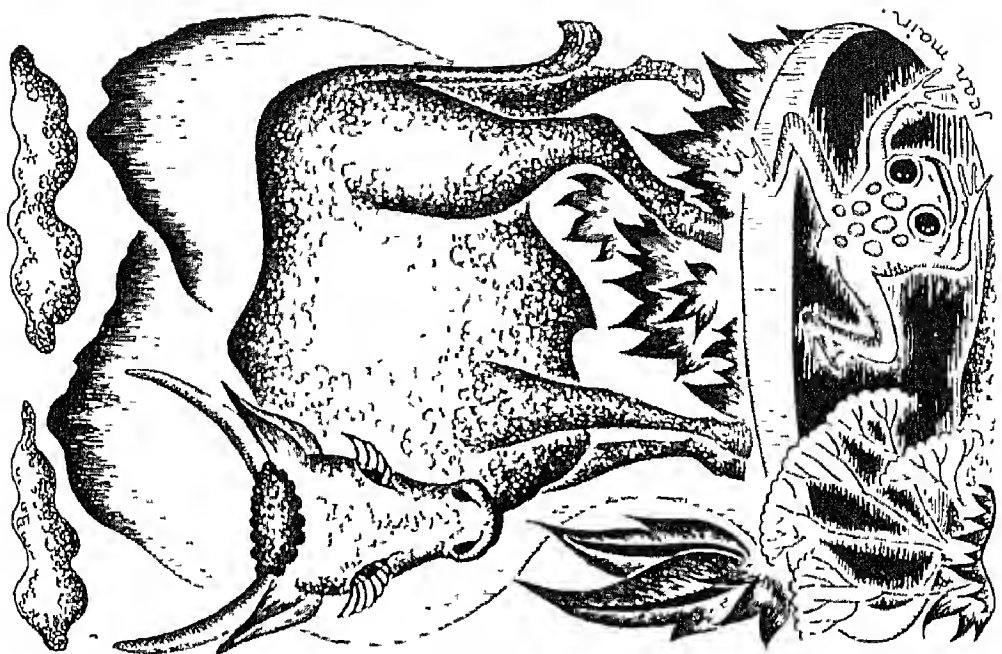
Sure enough, when the goose got up, there in the straw lay an egg. The old man picked it up and gave a cry of joy.

"Wife! wife!" he said, "this egg is made of gold!"

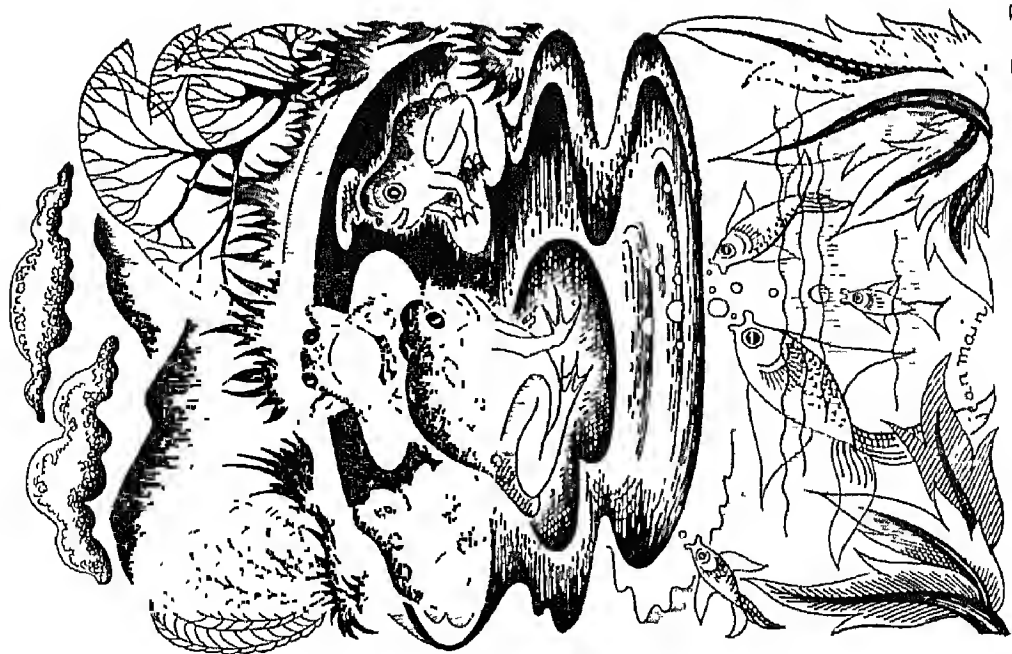
The next day at about the same time the goose laid another golden egg.

"Our fortune is made," said the old man.

He did not go to work at all, but sat all day looking into the box in which he put the golden eggs. Every day the old man added one more egg, and he would sit counting them and chuckling over his riches.



THE FROG AND THE OX



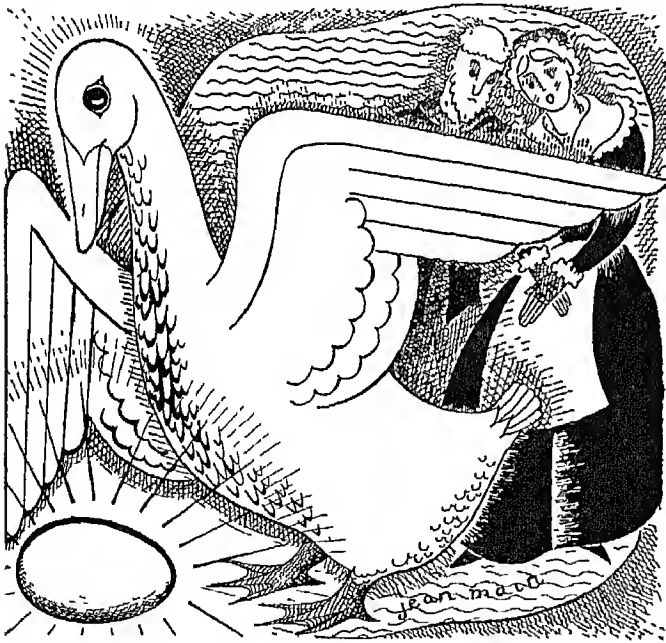
After a while he began to grumble. He thought that the eggs did not come fast enough, and he wanted more at once.

"The goose must have hundreds of eggs inside her," said he. "I will kill her and have them all without any waiting."

So he killed the goose. Alas! she was just the same inside as any other goose. Not a single golden egg was to be found.

When the wife saw the dead bird she was very angry.

"Foolish old man," she said, "now we shall never have another golden egg," and throwing her apron over her head she wept bitterly.



10. HOW TO EAT CHEESE

THERE was once an old widow who had a son named Pat. "Pat," she said to him one day, "it is time you had a wife. Why don't you find a nice girl and ask her to marry you?"

"Well, mother," said Pat, "I know three nice girls, but I like all three so well that I

cannot tell which of them to choose for my wife."

"Bring them all here to supper," said his mother, "and I will help you to pick the best wife."

So Pat went round to the three pretty maids, whose names were Lily, Rose and May, and asked them to supper. Lily was tall and fair and clever. Rose was short and dark and full of fun. May was sweet and good.

"I must choose one of these three," thought Pat.

They said that they would like very much to come, and at supper time they arrived at the widow's house. Lily had a new blue dress, Rose had a new red dress, and May's new dress was white.

They had rabbit pie for supper which everyone said was very good. Then they had gooseberry tart with custard and cream. Last of all, they had cheese. Each girl took a piece and cut off the rind, and the widow watched her very carefully while she did so.

Lily took her knife and cut off the rind from her slice. She did not watch what she was doing and left a thick piece of cheese on the rind. Rose took her knife and cut the rind very thin. May took her knife and cut the rind neither thick nor thin.

When the three girls had gone home, the widow said to Pat, "Do not choose Lily, for she will be wasteful. Do not choose Rose, for she will be mean, and will not give you enough to eat. Choose May. The rind of her cheese was just right. She will make you a good little wife."

So Pat asked May to marry him, and they were happy so long as they lived.

11. THE CAT GIRL

PART I

A MAN once had a beautiful cat. It had such gentle ways that he loved it, and wished he could take it everywhere with him.

"If I could turn Puss into a little girl," he said, "then I could take her with me when I went for a walk or to visit my friends."

One day the cat's master went to a shop kept by a man who sold magic drinks.

"Can you give me a magic drink which will turn my cat into a little girl?" he asked.

"Yes," said the man, "here is some in this bottle. Pour a thimbleful into the cat's milk, and the cat will at once look like a little girl."

The man poured some of the magic drink into the cat's milk, and when it had lapped for three seconds, the cat was changed, and a pretty girl stood in its place. The man was filled with joy. He did not know that the drink had only made the cat *look* like a little girl. She was really a cat still.

"Now, my dear," he said, "you must come and visit my friends," and he took her to see a man and his wife.

"How-do-you-do?" they said, smiling kindly at the cat girl.

"Meeow," was all she could say in reply.

"What a strange girl!" thought the man and woman. "Perhaps she has a cold and cannot talk very well."

Presently a little mouse came out of a hole and began to play in the middle of the room. The cat girl jumped up from her seat and ran to catch it.

"You bad girl," cried her master, "come home at once! Your manners are shocking."

"Yes, take her home," said his friends. "She is not like a girl at all. She is more like a cat."

The master took the cat girl back to the magic-drink shop.

"What can I do now?" he said to the shopman. "I have made a great mistake. I would rather have a real cat than a cat girl."

"I can easily put that right," said the clever shopman.

He gave the cat girl some blue water out of a big blue bottle, and she was soon turned into a cat once more.



THE CAT GIRL

PART II

THEN they all sat down to tea. The cat girl took up her cup, but did not know how to drink and so began to lap.

"What a rude girl!" said everyone, and her master hung his head in shame.

12. HOPPING HARRY

PART I

THIERIE was once a boy who was so fond of hopping that he was called Hopping Harry. He did not walk to school as other boys do. He went along with a hop, skip and jump. Hopping Harry could not sit still in school, however hard he

tried His legs wanted to be up and away. They would not keep still and let him work at his lessons.

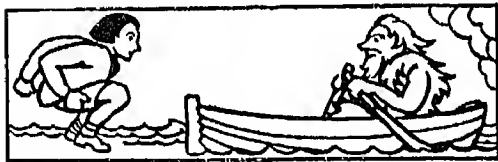
One morning his legs hopped him right past the school They hopped him down the lane, over the fields and on to the seashore He hopped over the waves and found himself in a little boat In the boat sat a queer little man His face, hair and beard were green, and he was dressed in seaweed

"Ho! ho! ho!" said he. "Why are you not at school?"

"My legs took me past the school," said Harry

"Ho! ho! ho!" said the little man. "I knew that would happen some day Now you are here, there is something you can do for me before you go back"

Harry felt frightened, but the little green man looked kind. So Hopping Harry sat as still as his legs would let him, and the little boat glided through the water.



HOPPING HARRY

PART II

AT last they came to a cliff. Halfway up was the mouth of a cave "That cave is full of gold," said the little man, "but it is so high up that I cannot reach it. You must give one of your best hops, and that will take you into the cave Bring me what you find there"

Harry hopped Up he went right into the cave. There he found a sack full of gold. He put the sack on his back and stood in front of the cave Then he hopped down, and there he was back in the boat

"You are a good lad," said the green man "You may take some of the gold for yourself"

Harry quickly filled his pockets. Away went the boat, till they reached the shore again Harry hopped out, and off he went hopping, skipping and jumping, till he came to school at last.

"You are late," said the teacher, "and what have you in your pockets?"

Harry put his hand in his pocket expecting to pull out fairy gold Well, what do you think he found? Nothing but round pebbles!

13. THE PRINCESS AND THE PEA

THERE was once a queen who had a handsome son, and she made up her mind that this prince should marry none but a real princess So she invited all the fairest ladies of the court to the castle, and put each lady to a test which was to show whether or not she were a real princess

The test was to sleep one night in the great bed of the palace On it were piled twenty mattresses, and on them twenty feather beds, reaching nearly to the ceiling. Under the bottom mattress the queen had placed a single pea.

"A real princess," she said, "will have a skin so soft and delicate that she will feel the pea through all the feather beds and mattresses."

Whenever a lady had spent the night in the great bed, the queen would ask her how she had slept

"Beautifully," was always the reply.

"Then," the queen would say, "you are no real princess Guards, turn her out of doors"

One stormy night a maiden came to the castle gate She was poorly dressed, and her hair and clothes were streaming with rain, but she said she was a true princess. The guards would have turned her away, but the queen said, "No, let her enter I will find out whether she is speaking the truth," and herself led her to the bed-chamber.

In the morning the queen asked the princess if she had slept well

"Not a wink the whole night long," replied the maiden. "Something hard was in the mattress and, though I tossed and turned, I could get no rest. This morning I am black and blue with bruises."

Then the queen knew that she had found a real princess at last, and her wedding with the prince took place amid great rejoicings.

14. THE GREEDY WOODCUTTER AND THE FAIRY

ONE summer evening a woodcutter was on his way home. He had just carried a sackful of firewood to a farmhouse, and the empty sack was slung over his shoulder. He was a poor man and had to work very hard to earn an honest living.

As he trudged along, he grumbled to himself. "Only twopence for that great sack of firewood! I shall never get rich at this rate!"

In a moment, a dainty little fairy appeared before him.

"Would you be content, woodcutter," she asked, "if I were to fill that sack with gold for you?"

"Yes, indeed," he replied.

The fairy stretched out her wand. The woodcutter opened the sack's mouth, then suddenly closed it up again. He had thought it a very large sack when filled with wood for someone else, but now it seemed too small for himself.

"Wait a bit, wait a bit!" he cried. "I have a much larger sack at home. I will fetch it, and you can fill that instead."

He ran home as fast as he could and was soon back again with a very large sack. Alas! the fairy, disgusted at his greediness, had vanished, and the woodman was left with nothing but two empty sacks to carry home.

15. THE FOX AND THE GOAT

A FOX one day fell down a well from which he could not climb out. After he had been in the well for a long time, a goat passed by. Feeling thirsty, she came to the edge of the well, and looking in she saw the fox.

"Is the water sweet?" asked the goat.

"Yes, very," replied the fox. "It is so sweet that I cannot have enough of it. Why don't you jump in and try it too?"

The foolish goat at once jumped into the well for a drink. This was exactly what the cunning fox wanted. With one bound he was on the goat's back, and with another out of the well once more. The poor goat was left behind in the water.

"Good-bye, Madam Goat," called the fox, as he trotted off. "I hope you find the water sweet enough for you."



16. THE GOLD SHOE

PART I

ONE morning a little princess was playing in her garden. Her name was Poppy, and she wore a silk dress, a gold crown, and little gold shoes with blue bows on them. She looked so pretty that a bad fairy who was passing swooped down, caught the princess up in her arms and flew away with her.

When it was found that Princess Poppy had disappeared, everyone in the palace began to search for her. Her brother, Prince Hal, went out into the garden and there found a little gold shoe with a blue bow on it. The shoe had fallen off as Poppy was carried away. As he stood holding it in his hand and wondering how it came to be there, a golden eagle came down from the sky.

"What are you seeking for, prince?" he asked. "Can I help you at all?"

"Take this shoe," replied the prince, "and find my sister, Princess Poppy, to whom it belongs."



THE GOLD SHOE

PART II

NOW the bad fairy had shut the princess in a tower on a rock in the middle of the sea. She was very lonely, for no one ever came near her. Still, she hung her little gold shoe out of the window, hoping that someone might see it and come to the rescue.

One day the golden eagle came flying over the sea. He saw the gold shoe hanging

out of the window, and shining in the sun like a tiny lamp. He at once flew down, carrying the other shoe, swooped in at the window of the tower and laid it at the princess's feet.

She gave a cry of joy and slipped the shoes on to her tiny feet.

"Now set me free, dear eagle," she said.

"I cannot do that," said the eagle, "for you are under a magic spell. Only the prince, your brother, can set you free. Do not weep, however, for I will bring the prince to you."

THE GOLD SHOE

PART III

A WEEK passed by, and at last the eagle appeared again, carrying the prince on his back, and set him down at the foot of the tower.

"Now," he said, "you must go round and round the rocks for seven days. Only when the sun sets may you rest. As soon as it rises again, round you must go once more. All the time you must eat no food, and as you walk you must sing."

The prince set off. As he walked he sang all the songs he knew, and when he could think of no more he sang them all over again. Round and round he went, his legs getting more and more weary, and his voice more and more hoarse each time. When the last day came he was so tired that he could hardly crawl, and so hoarse that he could scarcely sing a note.

At sunset on the seventh day his task was done. As the last rays of the sun lit up the tower, down it fell, splash! into the sea, and Princess Poppy was sitting on the rock beside him.

They looked up, and there was the eagle flying to them with a basket of food in his claws. They had a happy meal, and when it was ended the eagle took the brother and sister on his back and flew off with them to their home.

17. JACK THE GIANT-KILLER

PART I

IN Cornwall, the south west corner of England, there is a mountain with a castle on the top standing out in the sea. It is called St. Michael's Mount.

Long ago a wicked giant lived on this mountain. He was as tall as a house and ten yards round. The giant's name was Cormoran. He liked to say his name over and over again, and his voice rumbled like thunder. Day after day he used to wade through the sea to the shore and steal the cattle from the poor Cornish farmers. He would carry half a dozen oxen on his back, tuck three times as many sheep into his belt and pull up a young tree as a staff. Then he would march back to the Mount and spend the rest of the day eating and drinking.

On one of the farms lived a brave boy named Jack. As he grew older, he became more and more angry whenever the giant Cormoran came and stole his father's cattle. He set his wits to work and at last hit on a plan for killing the giant.

JACK THE GIANT-KILLER

PART II

ONE evening in winter Jack swam across to the Mount. Round his neck he had hung a horn and on his back were a pickaxe and a spade. As he stepped on land, he could hear the giant snoring. He set to work at once to dig a great pit, and by the morning it was finished. He broke long branches from the trees and laid them over the hole. On top of the branches he put straw and leaves, and scattered earth over all, so that the pit was hidden and looked like solid ground. As soon as his trap was ready, Jack put his horn to his lips and blew a loud blast.

The giant awoke with a roar, shouting, "Who dares to wake me?"

"I dare," Jack shouted back at the top of his voice.

"Little rabbit," the giant bawled, "I will eat you for my breakfast."

"You must catch me first," laughed Jack, and he began to run.

JACK THE GIANT-KILLER

PART III

THE giant came rushing down the mountain. He had just put out his great hand to catch Jack, when he stepped on the earth which covered the pit. The branches gave way under his feet. Down he fell into the trap and broke his neck. So much noise did his fall make that people for miles around came running to see what had happened. They crowded round Jack, who had by this time swum back from the Mount, and he told them that the giant was dead.

The good news spread over the country, and all who heard it rejoiced to think that the terrible giant would trouble them no more. When the news reached the king, he sent for Jack. He thanked him for his brave deed, and gave him a fine sword, and a belt on which was written in letters of gold—

"This is Jack the Cornish man
Who slew the giant Cormoran."

Jack killed many other giants too, so men called him "Jack the Giant-Killer."

18. THE MAGIC OATMEAL

ONE wild winter night a Scottish farmer and his wife were sitting by a blazing fire in their farm kitchen. The wind howled in the chimney, and the

rain beat on the windows Suddenly there came a knock at the door

"Who can be out in such a night as this?" said the farmer's wife She opened the door, and there stood a little old woman dressed in a long green cloak streaming with rain

"Can you lend me a little oatmeal?" she asked. The farmer and his wife were very poor and there was only enough meal for three days left in the tub "Never mind! you are welcome to share it," said the farmer's kind wife, and she gave the old woman half

Next day the little woman came again She handed the farmer's wife a small bag. "In the bag is fairy oatmeal," she said. "Mix it with the rest of your meal and see what happens"

The farmer's wife did as she was told That night there was a terrible snowstorm So much snow fell that for thirteen weeks the roads were blocked with great snowdrifts, and no food could be brought to those in the farmhouse. But all that time they were never hungry. Though every morning they used half of their oatmeal for porridge, in the evening there was as much meal in the tub as before The magic oatmeal never grew less, and it saved them both from death

19. TRYING TO PLEASE EVERYBODY

PART I

A MAN and his son were one day driving a donkey to market to be sold The father rode on the donkey's back, while his son walked beside him.

Presently they met two men walking along. "Look at that fellow!" said one of the men "There he sits on his donkey as comfortably as you please, while his poor son has to walk on the hard road."

"Let us change places, son," said the father. He climbed down from the donkey's back The son jumped up in his place, and they travelled on.

Presently they met a group of men talking together in the roadway. "Look at that good-for-nothing lad," cried one of the party. "There he sits on his donkey, while his poor old father has to trudge along in the dust"

"It seems hard to please everyone," said the father "We had better both walk."

They had not gone far when they met some country girls "Look at those foolish men!" they cried "Fancy walking when they might both ride! That sturdy little donkey could easily carry them both"

"That is true," said the man, and he and his son both climbed on the donkey's back

TRYING TO PLEASE EVERYBODY

PART II

THEY had hardly settled themselves when a man cried out, "You ought to be ashamed of yourselves—two great fellows like you riding on one poor little donkey!"

"I will tell you what we had better do," said the man "Let us get a pole, tie the donkey to it and carry him between us"



They found a pole, tied the donkey's legs together and slung him upside down on the pole so that he hung between them. Then they staggered along under their heavy burden till at last they reached the town.

As soon as they entered the streets, a crowd gathered behind them, laughing and jeering. People followed them wherever they went, shouting and throwing stones at the two men who were so foolish as to carry a donkey about.

"I'll tell you what, father," said the son, at length, "if we try to please everybody we shall end by pleasing nobody. Let us only do what we ourselves think is right, and not care what other people say."

20. THE SNOW GIRL

IN the sunny land of Provence in the south of France, there is a little village, where once lived an old farmer and his wife. Though they had been married many years they had no children, and they often longed for a boy or girl to cheer their lonely old age.

Snow hardly ever falls in Provence, but one cold winter's night there was a heavy snowstorm and the farmer and his wife awoke to find the farmhouse almost buried in shining white snow. "How pretty and soft it is!" said the old woman, "I shall

make a little snow girl." She heaped and patted some snow into the figure of a girl and, to her surprise and delight, when it was finished the figure laughed and moved and followed her into the house.

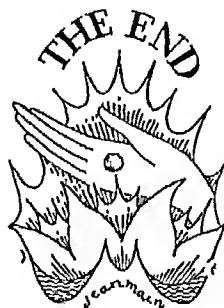
All the winter the old people were very happy with their little snow daughter. She was so merry and gentle that the village children loved to play with her, and she was so pretty that people came from far and near to see the wonderful snow maiden.

When the spring came, however, the snow girl grew sad. She was often seen crying, and when the bright sun shone she would slip away into the dark forest and hide from its rays. One day in early summer the village children had made a bonfire, and they called to the snow girl to join them in their play.

"No, no," said she, shaking her pretty head.

"Oh do come with us. It is such fun," they cried, and held out their hands to her. So she gave way, and was soon dancing round the fire with the rest.

Then the children began to leap over the bonfire. The little snow girl wished to do the same, and two big boys, holding her hands, swung her across the flames. But as the heat touched her delicate body it melted away, and two drops of water in the hands of the two boys who held her were all that was left of the little snow girl.



FIVE NOTABLE PICTURES FOR ORAL AND WRITTEN COMPOSITION

1. THE FINDING OF THE INFANT SAINT GEORGE



From the picture by Charles M. Gere, R.W.S.]

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THE FINDING OF THE INFANT SAINT GEORGE

LET the children examine the picture (No 141 in the portfolio) in silence, and then invite them to tell all they can about it. Many questions can be asked by the teacher.

Does this look like a picture of long ago? How can you tell? What English flowers can you see in it? Does it show spring, summer, autumn or winter? When do roses bloom? When do men plough the fields? What animals are used to draw the plough? How many oxen are there? How is the

ploughman dressed? Why does he carry a goad? What hangs from his belt? What is in the little cask? Why does he carry it? Why does he seem puzzled? Do you think that the baby is a boy or a girl? What has he round his waist? Upon what is he lying? What pictures are on the sash and the cloth? Do you think that the baby came from a rich home or a poor one? How can you tell? What do you think the ploughman will do? What would you have done if you had found the baby?

STORY

Long ago, in the days of witches and fairies, there lived in the town of Coventry a noble lord. We do not know his name, but he must have been a great man, for the king gave him as a wife his own fair daughter, a princess as good as she was beautiful. After some time a baby son was born to them, a bonny child with blue eyes and curly golden hair. Great was the rejoicing when the people of Coventry heard the news. But alas! their joy was soon turned to sorrow, for a few days after the baby's birth his mother, the princess, died.

The baby was given to a nurse to be taken care of. She was a careless woman, and did not trouble to look after him as his own mother would have done. One night, as she was asleep with the baby in the cradle beside her, an ugly witch crept into the room. This witch had hated the princess, and she meant to steal the baby for spite. She snatched him out of the cradle, wrapped the coverlet round him to stifle his cries, and carried him away. When the careless nurse awoke in the morning, to her horror she found the baby gone. The poor father was nearly mad with grief, and sent servants to search all the country round, but in vain. The little boy was not to be found.

Meanwhile, the witch had carried him away to her cottage in the forest, meaning to bring him up as her own child. But the baby did not take kindly to his ugly new nurse, and he did nothing but cry. He wailed and wept, and the witch could find no way to stop him. At last she grew so tired of his crying that she decided to get rid of him.

She carried him to a field where the day before she had seen a man ploughing. She laid the still weeping baby down beneath the shelter of a great stone over which a bramble bush was climbing. "Now," she thought to herself, "the ploughman will find the little brat when he comes by. He will take him back to his cottage, and so the king's grandson will be brought up as a

ploughboy. Ha! ha! That will be a fine revenge." And laughing evilly to herself she hurried away.

The baby lay where she had left him, crying bitterly, for he was cold and hungry. But a fairy, who all this while had been watching him to see that no harm should befall him, touched the bramble bush. It immediately became a rose bush laden with snow-white roses, which filled all the air around with their sweet scent. As soon as the baby saw the roses and smelt their perfume, he forgot that he was cold and hungry and he ceased to cry. He stretched out his little plump arms to the blossoms, and lay contentedly gazing at them as they swayed in the spring wind.

Presently up the hill came a sound of whistling, and soon the ploughman appeared driving before him his team of four white oxen. As he drew near the stone beneath which the baby lay, he stopped in surprise, for the wind carried to him the scent of the flowers.

"Roses in spring!" he said to himself "I must surely be dreaming!"

Just then the rose bush caught his eye, and under it he saw a chubby baby, dressed only in a richly embroidered sash and lying on a silken cloth embroidered with green dragons. The babe seemed to have no fear of him as he bent over it, but looked up at him with his big blue eyes and smiled. The ploughman stooped and picked him up gently in his rough hands. He carried the little foundling home to his wife, and she, having no children of her own, took him joyfully in her arms and was soon busy feeding and dressing him.

The baby lived with the ploughman and his wife, and they brought him up as their son. They called him George and taught him to be good and brave. People began to whisper that the noble and handsome youth must surely be a king's son.

When George had grown to manhood, he felt that he should not stay idly at home, but should go out into the world to find some work to do. He went first to the court, and

there showed himself so brave that the king made him a knight. Then, dressed in shining armour and mounted on a white horse, he set out to seek adventure. On his arm he carried a snow-white shield on which was a blood-red cross. This showed that he was a knight of the Cross.

Many adventures befell the young knight, but he met them all as a brave man should. Men began to wonder at his gentleness and goodness, and to call him Saint George. One of Saint George's adventures is known to every boy and girl. In his wanderings he came to the land of Egypt, and found the people there in great distress. For four-and-twenty years a fierce dragon had wasted all the land with his poisonous, fiery breath. Every year a fair maiden had to be given to this terrible monster. When Saint George

arrived in the land he found the king's daughter chained to a rock waiting to be eaten by the dragon. Saint George killed the dragon with his sword and saved the princess.

Saint George is the special saint of England. The red cross which he wore on his shield has become part of our English flags, and the rose of England reminds us how, one spring day long ago, Saint George was found under a rose bush.

Sentence making.

- 1 Tell how the baby came to be in the field.
- 2 Tell what the ploughman thought when he found the baby.
- 3 Tell how the roses came to bloom in springtime.

2. CIRCE AND THE COMPANIONS OF ULYSSES



After Briton Rivière

(Photograph Rischgitz)

CIRCE AND THE COMPANIONS OF ULYSSES

LET the children examine the picture (No 142 in the portfolio) in silence, and then invite them to tell all they can about it. Many questions can be asked

by the teacher, but the nature of the questions will to a large extent depend upon the answers of the children. See that the following points are observed: the pavement,

walls and carving on the walls which suggest an important house; the Greek costume; the wand, the strange fact of a lady sitting down with pigs; what the pigs are doing, the unusual feeding trough—a pretty bowl; how some pigs show that they have been well fed

Let one of the class sit down in the same attitude as Circe. Some of the pigs look at her as if pleading to be turned again into men, but she disdainfully looks on, heedless of their plight

STORY

Now you shall hear the story of the strange and beautiful lady who kept pigs in her palace garden.

You have all heard of the cunning warrior Ulysses, one of the Greek heroes who fought against the city of Troy. You remember that it was he who thought of the clever plan of building the wooden horse and filling it with soldiers. The Trojans dragged the wooden horse within the city, and at night the soldiers inside the horse crept out, the rest of the Greeks joined them, and they took the city and burned it to the ground.

When the fighting was over the Greek heroes set out in their ships to return to their homes in Greece. Ulysses went with them in his own ship. But fierce storms drove Ulysses' ship away from the rest, and for many weary months he and his men were obliged to sail on alone. They had many adventures and fought with many terrible monsters. At last, weary and worn with being tossed on the waves, they reached a beautiful wooded island, where they decided to stay and rest for a while.

As soon as they had cast anchor, Ulysses' men wished to land and explore the island.

"We may find nuts and berries and ripe figs," they said, "and perhaps we might kill a deer and have roast venison for supper."

You must know that these sailors were greedy fellows, always thinking of food, and grumbling at what they were given to eat. But wise Ulysses would not allow them all to go ashore.

"Remember, men," said he, "how many dangers we have met on our long journey. Perhaps in those thick woods lurk monstrous dragons or three-headed giants, and if we should all land on the island together, they would seize and eat us. Then none of us would ever return to our wives and children. But I have a plan by which we can explore the island in safety."

So saying, he divided the crew into two bands with twenty-two men in each. He appointed his friend Eurylochus captain of one band, and he took charge of the other himself. Then he took off his helmet and put into it two sea shells, on one of which he had written "Stay" and on the other "Go." While a sailor held the helmet, Ulysses and Eurylochus each drew out a shell. Ulysses' shell said "Stay", while Eurylochus' shell was marked "Go." Thus it was decided that Eurylochus and his men should land and seek food in the island, while Ulysses and his men stayed by the seashore to guard the ship. Then, if the men on the island were in danger, those on the shore could come to their rescue.

Eurylochus and his men landed in the ship's boats and set off inland. As they went along, the sailors began to talk of the food which they hoped to find.

"I shall look for figs," said one.

"Birds' eggs for me," said another.

"I have brought my bow and arrows," said a third, "and if I can shoot a nice tender little wild pig we will have roast pork for supper."

"Ah!" cried all the rest, smacking their lips.

Only Eurylochus said nothing, for he was thinking of the dangers which might lie ahead.

Presently they saw, above the tops of the trees, a column of smoke rising into the air.

"Aha!" said one of the men, "we shall have a meal soon. That smoke shows that someone is cooking his dinner."

They hurried into the wood from which the smoke came, and to their surprise found a broad pathway running through it. The

pathway led them to a stately palace of white marble, in front of which lay a lawn of greenest grass

They had scarcely set foot on this lawn when to their horror they found themselves surrounded by a pack of wild animals—lions, tigers, bears and wolves. These creatures, however, did them no harm, but fawned upon them like dogs, licking their hands and feet. The men wished to play with these friendly animals, but Eurylochus saw a savage look in their eyes and told the men to leave them alone.

Now a savoury smell of cooking from the palace made the hungry sailors hurry on. As they reached the palace door, there appeared in the doorway a beautiful woman dressed in a white robe, and with long black hair hanging down her back, as you see it in the picture.

"Come in, come in, weary travellers," she said smiling. "I have long been expecting you, and a feast is waiting for you."

The sailors hurried in, pushing and jostling each other to get to the food. But Eurylochus remained outside, for he did not like the lady's smile, or the long black wand which she held in her hand. In the picture you can see the wand lying on the terrace behind her.

When the sailors had gone in, however, he slipped in after them and hid behind a pillar to watch. He saw his comrades seated on two-and-twenty golden thrones with cushions of silk at a table loaded with food, while servants brought them huge goblets filled with wine. They were eating and drinking as if they never meant to stop. They crammed pieces of roast meat into their mouths, and washed them down with huge draughts of wine.

"Why, they are more like pigs than men," thought Eurylochus in disgust.

It seemed as if the sailors' hunger and thirst could never be satisfied, but at last they could eat and drink no more, and leaned back in their golden seats. Then Circe, who had been watching them all the while, came forward carrying her long black wand in her hand.

"You greedy gluttons," she said, "you are not fit to sit at a lady's table. You shall receive a fit punishment for your greed. I am Circe, the enchantress, and I have power to change men into the animals which they are most like. You have behaved like pigs, and pigs you shall become. Begone to your sties!"

Circe stamped her foot and waved her wand as she spoke. Lo and behold! on the two-and-twenty golden thrones sat two-and-twenty porkers, leaning against the silken cushions and with their trotters on the tablecloth. Finding their seats uncomfortable, they slipped to the ground and ran to Circe. But when they opened their snouts to beg for mercy, the only sounds that came forth were grunts and squeals. Circe only laughed and drove them out of the palace to the hog pen, a dirty place full of thick mud sprinkled with straw.

Circe herself sat down on the pavement behind the palace, and laughed to see the plight of the poor sailors. Some of them had eaten so much that they lay down just as they were, unable to move. Others wallowed in the mud, and seemed to enjoy being pigs instead of men. But the rest crowded to Circe, and raising their snouts in the air squealed piteously as if to ask her to turn them into men once more.

Meanwhile, Eurylochus was hurrying to the seashore as fast as he could to tell Ulysses the sad news.

"I will go myself to the palace," said Ulysses, the brave hero, "and see if I can rescue my poor men from this cruel spell. My cunning will be a match for the magic spells of Circe."

He girded his sword on his thigh, bade farewell to his men, who greatly feared lest he should never come back, and set out alone on his adventure.

As he hurried through the wood which led to Circe's palace he saw coming towards him a beautiful youth. He wore winged sandals on his feet and a winged cap on his head, and in his left hand he carried a winged staff. In the other hand he bore a curious plant

with a black root and a snow-white flower. Ulysses bowed his head, for he knew that this youth was Mercury, the messenger of the gods.

"Ulysses," said Mercury, "the gods love you for your courage and your wisdom, and they have sent me to tell you that you are in great danger. Circe knows that you are coming, and she intends to turn you into a fox, the most cunning of all animals. But have no fear. The gods send you this flower. It is called *moly*, and he who carries it need have no fear of magic. Breathe its scent all the time that you are in Circe's palace, and be sure to take a deep breath before you eat her magic food and drink her enchanted wine. If you do this, no harm will come to you, and you will be able to rescue your men from Circe's power."

With these words Mercury disappeared, and Ulysses went on his way rejoicing and carrying the flower in his hand. When he reached the palace the wild beasts fawned upon him, but he drew his sword and drove them off. Circe was waiting for him in the doorway.

"Welcome, noble stranger," she said. "Will you not come in and rest?"

Ulysses thanked her and, taking a deep breath of the *moly's* scent, he followed her into the palace.

A single golden throne now stood beside the table, and Circe begged Ulysses to sit down and dine. He did so, but was careful to smell the flower of the gods before either eating or drinking. When he had eaten a very little of the choice food he refused to take any more.

"You are a wise and cunning man," said Circe, "for you have eaten but little of my magic meat and drink. I shall change you into a fox, so that you may use your cunning to steal hens from poultry yards."

She waved her wand as she spoke, but the magic flower protected him from her spells, and, springing up, he seized her by her long hair.

"Wicked woman," he said, drawing his

sword, "you shall die, unless you change my friends into men once more."

Circe was terrified at the sight of his shining sword, and promised to do as he told her. She blew a little silver whistle and in trotted the twenty-two sailors who had become pigs. As soon as they saw Ulysses they rushed to him and seemed to beg him to set them free. Then Circe waved her wand. The pigs' bristles fell off, they stood upon their hind legs and became men once more.

They crowded round Ulysses and thanked him for saving them. But to Ulysses they seemed to behave like pigs still, for even while they were thanking him he saw them looking with longing eyes at the remains of the feast on the table.

"At heart they are still pigs," he thought, "and so they will always be."

At this moment there was a sound of running footsteps outside, and in came the faithful Eurylochus at the head of his men. Ulysses had been so long away that they had grown anxious and had come to seek him. What a happy meeting then took place! Now that they were all together once more Ulysses and his comrades made themselves at home in Circe's palace, where they rested themselves after the toil and hardship of their long voyage.

As for the wolves, lions, bears and other wild animals, these, too, had once been men with fierce and savage tempers. Circe offered to change them into men once more, but Ulysses said, "No, let them remain as they are. They will remind my sailors that all greedy and ill-tempered people will in the end become beasts, as they are."

Sentence making.

1. Tell why the pigs are crowding up to Circe.

2. Tell why the sailors deserved to be made into pigs.

3. Tell what magic you would do with a fairy wand.

3. SIR ISUMBRAS AT THE FORD

LET the children examine the picture (No 143 in the portfolio) in silence, and then invite them to tell all they can about it. Many questions can be asked by the teacher. See that the following points are observed: the rich trappings of the horse, the bells, the knight's splendid armour, the peacock's feathers in the helmet, the children's bare feet; the bundle of sticks; the knight's kindly face, the trustfulness of the children, the children's dress (they are both boys), the nature of the surrounding country, the season of the year; the shallow river and the ford.

Certain points in the picture cannot be understood until the children hear the story; for instance the reason why the children are not finely dressed, why their feet are bare, why they have been gathering sticks, why they look sad, why they are crossing a ford, why one is dressed like a girl. After the story has been read these points can be cleared up by looking at the picture again. The lesson should be completed by the children retelling the story.

The MS. of the Romance of Sir Isumbras is in the library of Corpus College, Cambridge. The Romance is one of the Early English Metrical Romances, written probably in the early half of the fourteenth century.

STORY

Once, long ago, there lived a famous knight called Sir Isumbras. He was rich and handsome, and he loved hunting and hawking, which were then the pastimes of rich men. He was strong and brave and won the prizes at many tournaments. To his castle came many followers, for there was always plenty of good food to be had there, and minstrels played and sang while the people sat at meals. The wife of Sir Isumbras was very beautiful, and they dearly loved their three handsome children.

It is sad to relate that this brave knight had one great fault—he was very proud. He forgot that God gives all good things, and

he thought that because he was such a fine person, he deserved to have a castle and many servants, and a beautiful wife and children.

One lovely morning Sir Isumbras went out hawking. He rode on his favourite horse; dogs trotted behind, and on his gloved fist he carried his hawk. Suddenly an angel appeared and spoke to him.

"Sir Isumbras," said the angel, "the sin of pride has filled your heart, and the time has come for you to learn that you are no better than other men."

In great fear the knight sprang from his horse and fell on his knees.

"O God," he said, "forgive me for my pride, and help me bravely to bear my punishment."

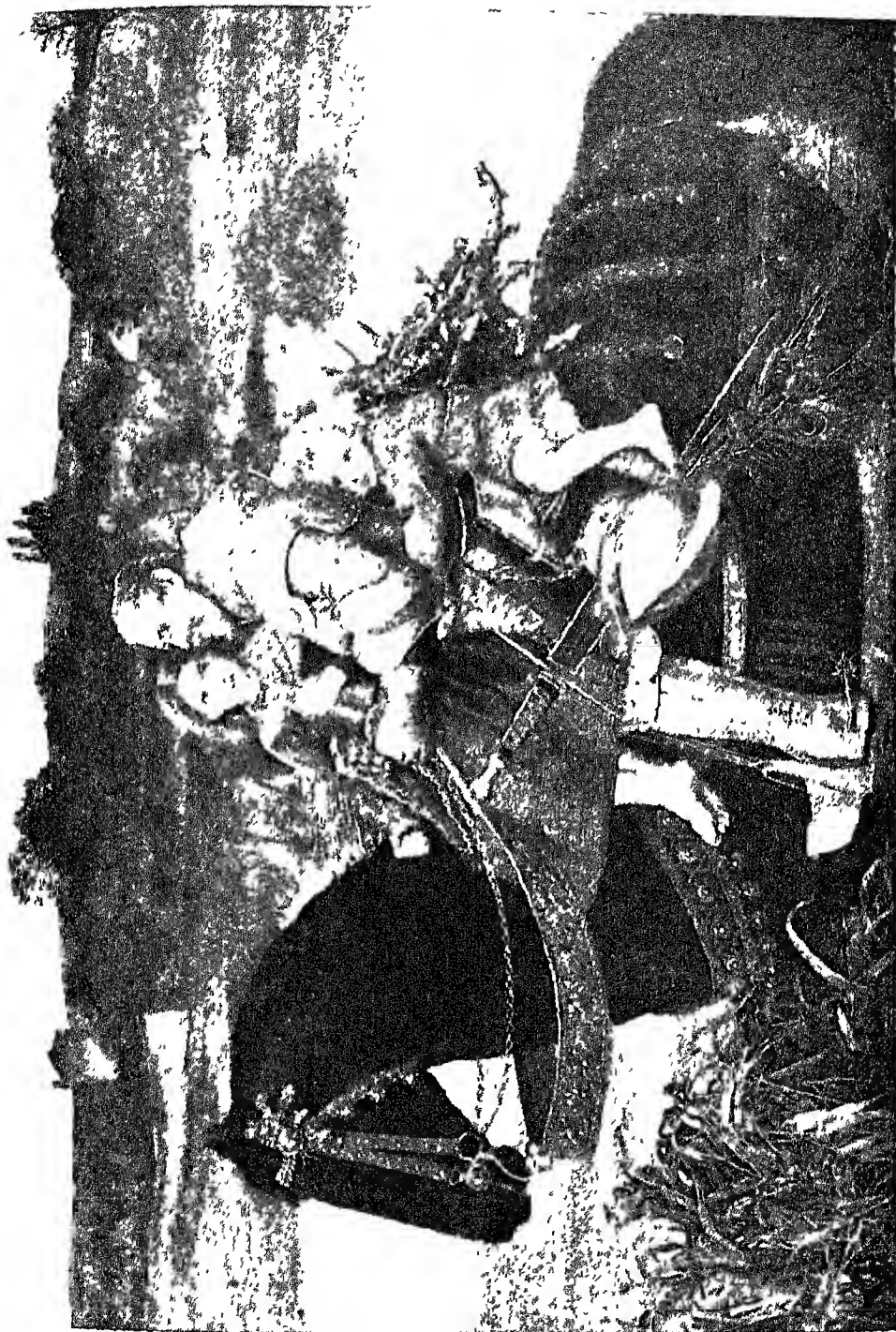
For a long time Sir Isumbras kept silent, then he rose from his knees and prepared to mount his horse and go back to his castle. Then the punishment began to fall on him. His horse, his hawk and his dogs fell dead before him. In fear and trembling Sir Isumbras walked slowly back to his castle. His servants, seeing him, rushed to meet him with terrible news. His horses and cattle in the fields had been killed by lightning, and his hens and ducks had been stung to death by snakes.

"I will not complain," said Sir Isumbras, "it is my own fault that these things have come upon me."

Then a small page boy ran breathlessly up to the knight, and in a sobbing voice he said, "O my lord, your castle is burned to the ground and many of your servants are dead. My lady and her children have only just escaped from the burning castle."

Sir Isumbras was so joyful that his wife and children had been spared that he took out his purse of gold and said to the page, "Take all the gold I have, for telling me that my lady and her children are safe."

When the knight returned, he found his wife and children shivering under a thorn bush. They had lost everything in the fire, even their clothes, so they had to dress in any garments their servants and neighbours



From the picture by Sir J. E. Millais, Bt., P.R.A.

SIR ISUMERAS AT THE FORD

[By the courtesy of The Lady Lever Art Gallery, Port Sunlight]

could spare. We see in the picture that one of the boys had to wear the clothes of a girl.

What could Sir Isumbras do to please God? He did what many men did in those days, he got ready to travel hundreds of miles to Jerusalem, where he would kneel before the holy place where Christ was buried. With his sword he cut a cross on his bare shoulder. Then with his wife and children he set out. They had only one horse left, so they took it in turns to ride, and as they might not take any food with them they had to beg for it as they went along. Sometimes, when no houses were near, they had nothing but berries to eat and they were forced to drink water from the streams. Soon after they set out they came to a wide, shallow river which stopped their way. Sir Isumbras carried the two eldest boys across the ford on his horse and placed them under a bush of broom to play with the flowers, while he went back for his wife and youngest son. In the picture we see that the poor children have been gathering sticks to make a fire, and that their little feet are bare. While the knight went back across the ford for his wife and youngest son, a huge lion carried off the eldest boy into the deep forest and an enormous leopard carried off the second son.

How sad were the hearts of the knight and lady at the loss of their two sons, and how bitterly did the youngest boy weep when he knew that he had lost his dear brothers! After many days they reached the shore of a sea where seven hundred ships were anchored. The captain of these ships was king of the Saracens, who were enemies of all men who loved Christ.

"Come with me, Sir Knight," said the king, "and I will give you and your family great treasure."

How could Sir Isumbras do such a dreadful thing! Boldly he answered, "I fight for my Lord the King of Heaven."

Then the Saracen king seized the lady and carried her away, leaving the knight alone with his son. But before the lady was carried off, she gave Sir Isumbras a red cloak with much gold wrapped up in it, and said to

him, "Do not fear, my dear husband, I know we shall meet again. Follow me if you can."

As the knight stood gazing out to sea watching the ship which held his lady, a fierce unicorn rushed at the youngest boy and carried him away with lightning speed, and an eagle swooped down from the sky and flew away with the red cloak and the gold.

Sir Isumbras was now alone in the world, but he did not yet lose heart. He went to work for a blacksmith, and in his spare time made for himself a new suit of armour. There came a day when he needed the armour, for the Saracens descended on the land, and he had to fight to help the Christians. In the battle he was sorely wounded, but when he grew well again he put on the dress of a palmer and for seven years wandered as a pilgrim in the Holy Land. Now at last, when he was no longer proud, great good fortune came to him.

"As he sat about midnight
There came an angel fair and bright
And brought him bread and wine."

"Palmer," said the angel, "it is well with thee, the King of Heaven greeteth thee, and thy sin is forgiven."

Hearing this good news the knight rose joyfully and at once set out on his travels. At last he reached a fair castle where lived a kind queen who gave a gold florin, food and shelter to every poor man who came there. This queen was really the wife of Sir Isumbras, but they did not know each other, for the lady wore a crown and the knight a palmer's cloak. One day the knight climbed a lofty cliff and greatly to his surprise he found an eagle's nest in which was the same red cloak that his wife had given him seven years before. He carried it to the castle and could not keep back the tears as he thought of his wife and sons.

When the queen saw Sir Isumbras appear carrying the red cloak, she knew at last who he was. "My husband!" she cried joyfully, as she fell into his arms. After this happy meeting, husband and wife ruled together as king and queen of the land.

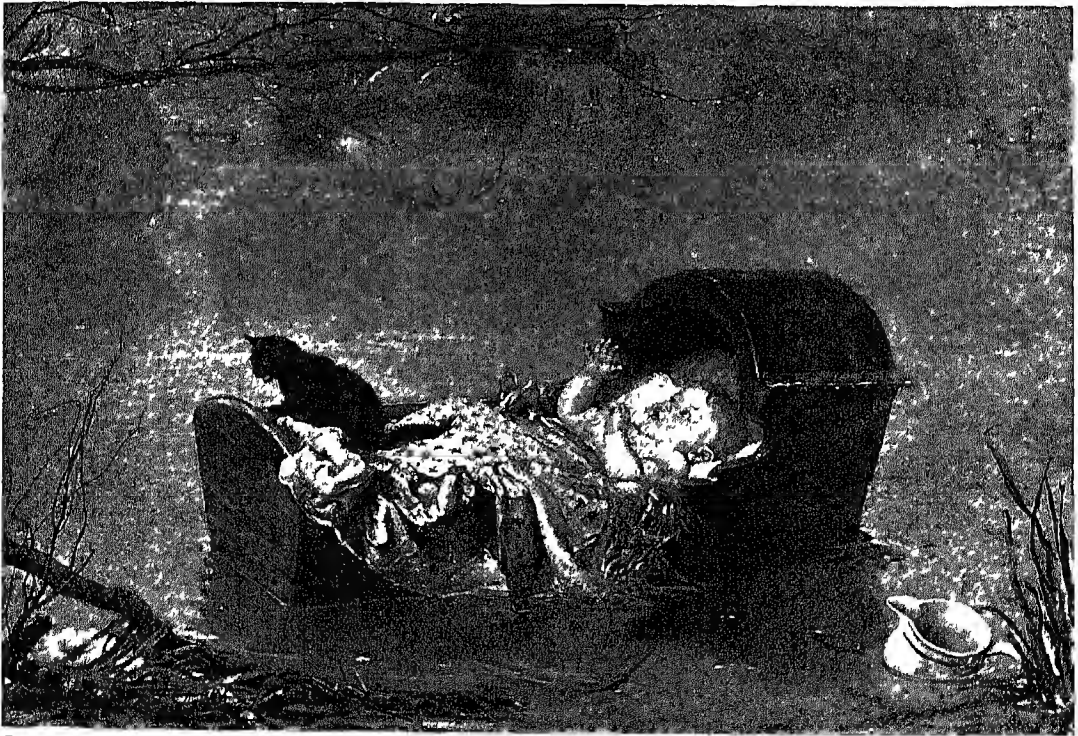
Some time afterwards a Saracen army came against the new king. He and his men were hard pressed in the battle, when suddenly there appeared in their ranks three unknown knights. One rode a lion, the second a leopard, while the third was mounted on a unicorn. With the help of these strangers Sir Isumbras was able to win the battle. When it was over, the strangers made themselves known as the knight's lost sons, now grown into strong young men. What feasting there was that night in the castle, and what happy talk

and laughter passed between Sir Isumbras and his wife and their three long-lost sons!

Sentence making.

1. Tell why Sir Isumbras is riding with his two children
- 2 Tell why the little boy has a bundle of sticks on his back
- 3 Tell what happened when Sir Isumbras went to fetch his wife and the youngest child.

4 A FLOOD



From the picture by Sir J. E. Milnes, Bt., P.R.A.]

[Reproduced by permission of the Manchester Corporation]

A FLOOD

IT may be necessary in some schools to have a short preliminary talk with the class about rivers and floods, for in many city schools the majority of the class

will not have seen a river. Most of them, however, will have seen a lake or a large pond, and they will know that these are full after heavy rain. They will know, too,

how the rain water rushes along in the street gutters after heavy rain

Let the children examine the picture (No. 144 in the portfolio) in silence, and then invite them to tell all they can about it. The following points should be observed. the season of the year (there are no leaves on the trees), the signs of the flood—the submerged fields marked by the fence, the haystacks in the water, the river lapping the windows of the houses, the willow trees almost covered, perhaps the cradle floated away from a door as the flood rose, or it may have floated out of a window, how the cradle being made like a wooden box was able to float; the happiness of the baby contrasted with the fear of the kitten which is *mewing*, the man in the punt hastening to the rescue, the way in which he moves his punt against the running stream, the type of houses and surrounding country suggest that the child

belongs to a farm labourer or a farmer; the rushes and the jug—perhaps it contains milk

There is no particular story connected with the picture, but the children may invent one. They can give names to the child, the man and woman, and the kitten. They will almost certainly suggest that the child was saved and taken back to its mother. Some of the children may remember how Moses was put in a cradle on the water.

Let one of the class demonstrate with a map pole how the man is punting.

Sentence making.

1. Tell how the cradle got into the water
2. Tell how the man saved the baby
3. Tell what the mother did when her baby was taken home.

5. OUTWARD BOUND

LET the children examine the picture (No. 145 in the portfolio) in silence, and then invite them to tell all they can about it. The following points should be observed: the toy ship is sailing under the rocky arch "outward bound" for the sea beyond, the ship has been made from a walnut shell and a feather, probably the feather of a gull or other sea bird, the children are in a cave, there is a hole in the roof through which light comes, the children have probably been bathing, there are several cockle shells lying about; they intend to go fishing, one basket probably holds bait, and the other food

Boys, especially, will delight in telling about their own fishing experiences. Invite them to make a walnut boat at home, or bring shells to school and make them into boats during a handwork lesson

There is no special story connected with this picture and therefore the children can allow their imaginations free rein. Let them put themselves in the places of these two

little girls, and make up the day's doings. Pretend that they slept together in the tiny bedroom of a cottage by the sea. When they woke up and found the sun shining they talked together eagerly and determined to spend the day by the sea. Describe the dresses they put on and how they did their hair, what nice things they packed for lunch; how they dug up some worms from the garden and put them in their bait basket, how they skipped over the sands till they found this beautiful cave; what shells they picked up; what fun they had while bathing; how they ate their lunch and watched the tide creeping in higher and higher, and how they made their little boat and set it on the dancing water. What will happen to the tiny vessel?

Sentence making.

1. Tell how you would go fishing.
2. Tell how the girls made their boat.
3. Tell why you like the seaside.



From the picture by Sir Edward J. Poynter, Bt, P.R.A.]

[By permission of the Trustees of The National Gallery

OUTWARD BOUND

THE TEACHING OF POETRY
IN THE
PRIMARY SCHOOL



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THE TEACHING OF POETRY

INTRODUCTION

Value of poetry.—To implant in children a love of good poetry is one of the highest tasks that a teacher can undertake. The study of poetry tends to elevate character, to develop a love of truth, beauty, music and rhythm, and to awaken emotions which inspire high thoughts and noble deeds.

These qualities are exercised only *indirectly* on the mind of the reader. The appeal of poetry is such a delicate, intangible, wayward thing, that it needs handling with the utmost care and understanding by the teacher in the school. All joy in poetry is destroyed by insistence on the learning of pieces that mean nothing to the child; by making difficult or wearying exercises of poems, by lack of explanation; or by explanation overdone, which reduces the pure music to a jingle of commonplace words, and blurs or disfigures the exquisite pictures painted by the poet.

Choice of poems.—Many of the difficulties in the teaching of poetry are overcome in this book, and teachers who study the pages following will find valuable assistance offered them in their work of introducing poetry to the pupils of the primary school.

It is obvious that the same poems will not appeal to all, so a wide choice is offered. Every poem included is excellent of its kind. Furthermore, all of these poems mean something to the child. They will stimulate his imagination, excite his amusement, rouse his sense of right and wrong, soothe him with familiar rhythms and beauty of sound, or delight him with stirring narrative. Rightly introduced, not one of these poems but will touch a chord of response in a child's heart. The older poems have stood the test of time, and have become

firmly established favourites through generations of young people, the modern poems have been put to the test, and children's love for them is indisputable.

It is necessary thus to blend the old with the new from the beginning of the pupils' adventure into the realm of poetry. Childhood does not change through the ages. Primitive poetry, and the old folk rhymes that delighted little mediaeval children, still hold their own with to-day's rising generation, and to omit these from the pupils' anthologies is to rob them of priceless gems, and impoverish the children's mental storehouses of treasure. Modern poetry for children takes its place beside these favourites. In choosing from this selection, the teacher may be assured that he will not find unsuitable, deep-thinking poems clothed in apparently easy language, whose matter is completely beyond the pupils' grasp. Yet though the poems are simple, their poetry is without exception good, and will educate the children to prefer the best in literature, and unconsciously avoid the ugly and insincere.

Hints on teaching.—In the actual teaching of the poems, it is wise for the teacher to read the poem first aloud, "with feeling and appreciation," as though the poet himself were speaking to the class. After that, each poem will unfold itself in its own way. The main theme will engross the pupils first, and they can open out their minds upon it. General questions, as suggested in the notes, will lead up to appreciation of the more subtle points, and clear away clouds of misunderstanding. It is a common mistake on the part of the teacher to assume that the child understands too much. The reading of "My Shadow" (Robert Louis Stevenson) often conveys nothing whatever

of its meaning to a young child, who has never stopped to ponder over his own shadow, and though perhaps quick to observe lights and colours, is a total stranger to the movements, or existence even, of shadows. There may also be confusion of words. One child, after learning the little text, "Set a watch, O Lord, before my mouth, and keep the door of my lips," protested stoutly that her daddie only set his watch beside her ear, "because I can't hear it in front of my mouth." On the other hand, although the meaning of the poem must be made clear, the music and the spirit felt, to dissect it further is to kill its attraction for the child, and weary him of it. Moreover, in killing the delight in one poem, the teacher runs a risk of destroying the child's enthusiasm for all poetry. As in teaching songs, the intricate details and the learning by heart must never be done to death. Questions other than those in the notes added to the poems will, of course, arise spontaneously from children and teacher during the lessons, but it is wise to avoid technicalities.

The pupils should read the poems aloud many times in the course of a lesson, pausing over, or repeating, special parts under discussion, and it is an advantage to allow them free self-expression afterwards, in the form of writing, drawing, or handwork of some description.

In the higher forms, the pupils should occasionally study poems silently, and write answers to questions set in the notes, either with or without reference to the poem itself. This is useful as a change of method, and also it is a sure way of finding out and correcting individual mistakes. It should never completely take the place of the oral lesson, however. It is always good for the members of a class to hear spontaneous opinions from each other, and spirited oral renderings of the poetry will infuse life into words that are dust and ashes to some youthful minds which become acquainted with them only through the medium of the text. Poetry also is specially suitable for

reading aloud, as songs are for singing. The partly oral "corrective" lesson that follows written exercises can never present the poem to the child in such glowing colours as it might have worn had its introduction been oral, added to which, the oral poetry lesson is one of the best for promoting understanding between teacher and pupils, and making of the many units one harmonious whole.

Recitation.—After the pupils have read the poems aloud and silently, and have understood them as fully as possible, they should select the ones they like best for memorising and recitation. It is wise to devote a portion of every poetry lesson to this important work, and occasionally a whole lesson may be profitably spent in hearing recitation. There are generally a few bright youngsters eager to be heard first, and their performances quickly awaken the enthusiasm of those who are more diffident. To most children, reciting and hearing recitation give delight, and a little encouragement produces earnest and joyous work. The pupils should be at pains to render the poetry as perfectly as possible in expression, speech and manner.

When hearing the recitation, therefore, stand the child well back from the class, and allow no one a copy of the poem for reference. This is a performance for voice and ear. Aim first at *distinctness*. It is not gained by shouting, but by opening the throat and shaping the mouth correctly. The voice production should be effortless, and may be assisted by the practice of simple breathing exercises before the recitation lesson. Children are, of course, imitative, and in their habitual modes of speech copy those of their kindred and playmates, so that the difficulties of pronunciation vary with the district and the environment of the child. Incorrect pronunciation gives "caew" for cow, "owver" for over, and "thet" or "thut" for that. We also have "whyal" for whale, reminiscent of the class-visit to the Zoo, which

produced, in answer to the question, "Which of you saw the bison?" "Please sir, do you mean the bison what we washed our hands in?"

Exercises on vowels will help the children to correct the faults in their accent. They should say many times slowly, *m . . oo*, *m . . o*, *m . . aw*, *m . . ah*, *m . . ay*, *m . . ee*, humming the initial letter. Other good initial letters are "l" and "r". Consonants are sometimes carelessly slurred, sometimes omitted, and sometimes over-emphasized. The children should say arctic, not "artic", longing not "long-ging", laughing not "larfin" or "laffin", little, not "li'l" or "littul". Exercise the consonants by adding them afterwards to the vowel sounds thus: *m . . oon*, *m . . oan*, *m . . orn*, *m . . oot*, *m . . oat*, *m . . ort*, and so on.

Besides being distinct, recitation should also be *expressive*. In order to bring out the meaning of a poem the child must first thoroughly understand and appreciate it; for this reason it is wise to let him select his own poems for recitation. He should be encouraged to deliver his chosen pieces to the class with all the natural expression and gesture at his command. Faults of affectation or indolence should be firmly corrected. The "singsong" voice should be discouraged, also the misplaced emphasis on unimportant words and phrases, as in —

"More neatly than the little boys
Who do it on the land"

The gesture should represent spontaneous emotion and be as untrammelled as possible. For instance, it is not desirable to point with the finger in the following verse —

"I have a little shadow,
That goes in and out with me."

The boy with the squeaky shoes in *Do You Ever?* would naturally walk about, but do not encourage any spinning round in the "tragic story" of the sage's pigtail. Self-expression in tone can be developed by practising words suggestive of their meaning, such as, "cheerily", "wearily"

"The silent snake goes *creepy-creep!*"
"Call him loudly; wake! wake up!"

Beat out strongly marked rhythms on the desks, or read the poem stressing the strong beats all through without thinking of the words. When reciting, the rhythm of the verse should never be lost.

In conclusion, all pupils of the primary school, from the lowest forms upwards, should have their own anthologies for private reading. From these they can select favourite poems for their notebooks, or even favourite verses or lines. They should memorise a number of short poems rather than one or two long ones, and also be encouraged to compose poems of their own.

SIXTY POEMS FOR THE FIRST YEAR'S COURSE

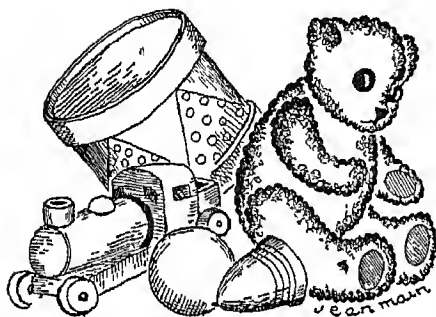
THERE is a selection of poems suitable for the lowest forms of the primary school. The poems have been chosen for the simple excellence of their poetry, and for their appeal to the child-mind. Easy modern verse and the standard favour-

ites of little children are placed side by side. These are the first flowers along the pathways leading into the fair land of poetry. Children who pluck them will wish to continue their journey into this delightful country, where there is beauty to uplift their thoughts, to

brighten and enrich their lives, and make the world for them a larger and fairer place.

The poems are divided into five sections. Appreciative notes, short explanations, and suggestions for dramatic expression, are attached to the poems, and may prove useful to the teacher when presenting them to the class

NURSERY RHYMES



THE NORTH WIND

The north wind doth blow
And we shall have snow,
And what will the robin do then,
 poor thing?
He'll sit in a barn
And keep himself warm,
And hide his head under his wing,
 poor thing!

Note—Here is a picture of winter, as a child knows it—biting wind and snow. How does the little robin face it? He has no warm fire or thick overcoat. Where does he go? What is a barn? Little birds fluff out their feathers for warmth, and turn their heads from the cruel wind. What does robin do with his head? When you say the verses, try to put all you feel into the words "poor thing." Why should we have snow when the north wind blows?

THE CROOKED MAN

There was a crooked man
Who walked a crooked mile
He found a crooked sixpence
Beside a crooked stile
He had a crooked cat
Which caught a crooked mouse,
And they all lived together
In a little crooked house.

Note—Why does this rhyme make you laugh? Saying words many times over does not always sound amusing. What about "Up, up, and up the fairies go winging"? Try it with other words, and say whether they sound funny, or heavy, or dancing. Try to say "crooked" with a different voice in every line. Draw a crooked picture of the crooked man at home with his crooked cat.

SOLOMON GRUNDY

Solomon Grundy,
Born on Monday,
Christened on Tuesday,
Married on Wednesday,
Took ill on Thursday,
Worse on Friday,
Died on Saturday,
Buried on Sunday,
So that was the end of Solomon Grundy



Note.—How long did Solomon Grundy live? What does "christened" mean? The long line of poetry at the end slows down the music. Is this right or wrong? Why? What do you think Solomon Grundy was like? Draw him.

SING A SONG OF SIXPENCE

Sing a song of sixpence,
A pocket full of rye,
Four-and-twenty blackbirds
Baked in a pie

When the pie was opened
The birds began to sing
Was not that a dainty dish
To set before a king ?

The king was in his counting-house
Counting out his money,
The queen was in the parlour
Eating bread and honey.

The maid was in the garden
Hanging out the clothes,
By came a little bird
And pecked off her nose.

Note—This poem is lively and bright, and full of movement. The birds, king, queen and maid are all busy. What is each doing ? What is rye ? What did the king have to eat ? The parlour was the queen's sitting room. How do you know that the queen liked honey ? Why do many children like honey ? Draw a picture of the maid.



THERE WAS AN OLD WOMAN

There was an old woman, as I've heard tell,
She went to the market, her eggs to sell,
She went to the market all on a market day,
And she fell asleep on the king's highway.

There came by a pedlar, whose name was
Stout,
He cut her petticoats all round about ;
He cut her petticoats up to the knees,
Which made the old woman to shiver and
freeze

When the little woman first did wake,
She began to shiver and she began to shake,
She began to wonder and she began to cry :
" Oh, deary, deary me, this is none of I !

" But if it be I, as I do hope it be,
I've a little dog at home and he'll know me,
If it be I, he'll wag his little tail,
And if it be not, he'll loudly bark and wail "

Home went the little woman all in the dark,
Up got the little dog, and he began to bark ;
He began to bark, and she began to cry,
" Oh, deary, deary me, this is none of I ! "

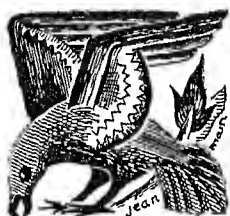
Note—The charm in this rhyme is its amusing little story. What is a pedlar ? Why did the little woman think that she was somebody else ? What, do you think, made the little dog bark at her ? The poem is full of music. It has been set to a pretty tune, and you should sing it. Notice that the beginnings of some of the lines are sung twice. This makes the tune stay in your mind. "The king's highway" is the main road to the town. Have you ever been to a market ? What have you seen there ? Why did the little woman shiver when she woke up ?

A FARMER WENT TROTTING

A farmer went trotting upon his grey mare,
Bumpety, bumpety, bump !
With his daughter behind him so rosy and fair,
Lumpety, lumpety, lump !

A raven cried croak and they all tumbled down,
Bumpety, bumpety, bump !
The mare broke her knees, and the farmer his
crown,
Lumpety, lumpety, lump !

Note—First read this poem, stressing the strong beats all through, without thinking of the words. Thus you feel the trot of the mare running through it. What is a mare? How do you know that the farmer's daughter was plump? Say the first verse in a lively way. The second is full of trouble. Try to croak like a raven, and make it sound startling! "The mare broke her knees," means that she grazed or scratched them. What was the farmer's crown?



THE GALLANT DUKE OF YORK

There was once a Duke of York who was made a general, and who was put at the head of an army of ten thousand men, but this general never won a battle. He took his soldiers from one place to another, and that was all that he ever did with them. Many people laughed at this Duke, and somebody made up this rhyme about him.

The gallant Duke of York,
He had ten thousand men;
He led them up to the top of a hill,
And he led them down again.
When they were up, they were up,
And when they were down, they were down,
And when they were only halfway up,
They were neither up nor down.

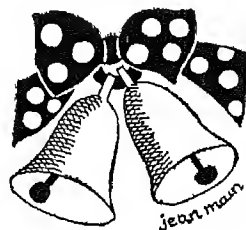
Note—There is marching in these lines. Try singing them when you are walking, and you will feel their swing. Which lines do you think are amusing? What is the name of our present Duke of York? What is his father's name?

THE BELLS OF LONDON

Gay go up and gay go down,
To ring the bells of London town
Halfpence and farthings,
Say the bells of St. Martin's
Oranges and lemons,
Say the bells of St. Clement's
Pancakes and fritters,
Say the bells of St. Peter's
Two sticks and an apple,
Say the bells of Whitechapel

Kettles and pans,
Say the bells of St. Ann's
You owe me ten shillings—
Say the bells of St. Helen's
When will you pay me?
Say the bells of Old Bailey.
When I grow rich,
Say the bells of Shoreditch.
Pray when will that be?
Say the bells of Stepney
I am sure I don't know,
Says the great bell of Bow

Note.—The merry chatter in this rhyme sounds like the clatter of bells. How many chimes of bells are talking? Try to make your voice different for each chime. Choose girls and boys with suitable voices for the different chimes—a very high voice for a light chime, and a deeper voice for the bells of Old Bailey. What did the bells of St. Helen's say? Which chime do you like best?



THE KING OF SPAIN'S DAUGHTER

I had a little nut tree,
Nothing would it bear
But a silver nutmeg
And a golden pea

The King of Spain's daughter
Came to visit me,
All for the sake
Of my little nut tree

I skipped over the water,
I danced over the sea,
And the birds in the air
Couldn't catch me

Note—This is the song of a dainty and happy little sprite. The first verse is full of colour. The second should be said with pride and delight. The third tells of the way in which a child shows happiness. Dramatise it—skipping about the room. When does mother use nutmegs? What is a king's daughter called?

I SAW A SHIP A SAILING

I saw a ship a-sailing,
A-sailing on the sea,
And, oh! it was all laden
With pretty things for me

There were comfits in the cabin,
And apples in the hold;
The sails were made of silk,
And the masts were made of gold

The four-and-twenty sailors
That stood upon the decks,
Were four-and-twenty white nuns
With chains about their necks.

The captain was a duck,
With a packet on his back;
And when the ship began to move
The captain said, "Quack! Quack!"

Note—Here is mystery! A wonderful ship sails in, with presents for us. What are they? Where is the hold? Make a painting of this pretty ship. Comfits are sugary sweets. What was the captain of the ship? What sailors were on board?

THERE WAS A LITTLE MAN

There was a little man and he had a little gun,
And his bullets were made of lead, lead, lead,
He went to the brook, and saw a little duck,
And shot it through the head, head, head

He carried it home to his old wife Joan,
And bade her a fire to make, make, make,
To roast the little duck he had shot in the
brook,
While he went to fetch the drake, drake, drake.

The drake was a-swimming, with his curly tail,
The little man made it his mark, mark, mark!
He let off his gun, but he fired too soon,
And the drake flew away with a "Quack!
quack! quack!"

Note—This is a jolly little song, with singing rhymes. Pick out these rhymes "Quack" should copy "mark." How is a drake different from a duck? Why did the little man fail to kill the drake?

WHEN I WAS A BACHELOR

When I was a bachelor, I lived by myself,
And all the bread and cheese I got, I put
upon a shelf,
The rats and the mice did lead me such a life,
I had to go to London to get myself a wife.
The streets were so bad, and the lanes were
so narrow,
I had to bring my wife home in a wheelbarrow,
The wheelbarrow broke, my wife had a fall,
Down tumbled wheelbarrow, little wife and all

Note—Here is a rhyme full of delightful nonsense. What is a bachelor? What do

you think the rats and mice did? What is a wheelbarrow? Where did the bachelor go to find a wife? What happened to her? Why did not the gentleman bring his wife home in a carriage?

THE MULBERRY BUSH

Here we go round the mulberry bush,
The mulberry bush,
The mulberry bush
Here we go round the mulberry bush,
So early in the morning

This is the way we wash our clothes,
Wash our clothes,
Wash our clothes
This is the way we wash our clothes,
So early Monday morning

This is the way we iron our clothes,
Iron our clothes,
Iron our clothes.
This is the way we iron our clothes,
So early Tuesday morning.

This is the way we scrub the floor,
Scrub the floor,
Scrub the floor.
This is the way we scrub the floor,
So early Wednesday morning

This is the way we mend our clothes,
Mend our clothes,
Mend our clothes.
This is the way we mend our clothes,
So early Thursday morning.

This is the way we sweep the house,
Sweep the house,
Sweep the house.
This is the way we sweep the house,
So early Friday morning.

This is the way we bake our bread,
Bake our bread,
Bake our bread
This is the way we bake our bread,
So early Saturday morning

This is the way we go to church,
Go to church,
Go to church
This is the way we go to church,
So early Sunday morning.

Note.—This nursery rhyme lends itself to action work. Say each verse slowly or quickly as the action suggests. "Mend our clothes" is a quiet verse, "scrub" is a lively one. Which day is washing-day? Which is the day for cleaning the house? What little worm is fond of the mulberry bush?

SIMPLE SIMON

Simple Simon met a pieman
Going to the fair.
Said Simple Simon to the pieman,
"Let me taste your ware."

Said the pieman to Simple Simon,
"Show me first the penny"
Said Simple Simon to the pieman,
"Indeed, I have not any"

Simple Simon went to see
If plums grew on a thistle
He pricked his fingers very much,
Which made poor Simon whistle

Simple Simon went a-fishing,
For to catch a whale
All the water he had got
Was in his mother's pail

Simple Simon made a great
snowball,
And brought it in to roast
He laid it down before the fire,
And soon the ball was lost



Note.—Here we have the story of a very silly boy. How many silly things did Simple Simon do? What is a fair? What should we say instead of "ware"? What happened to the snowball? What is a whale?

MILKING PAILS

Mary's gone a-milking,

A rea, a ria, a roses,

Mary's gone a-milking,

Gentle sweet mother o' mine.

Take your pails and go after her,

A rea, a ria, a roses,

Take your pails and go after her,

Gentle sweet daughter o' mine

Buy me a pair of new milking pails,

A rea, a ria, a roses,

Buy me a pair of new milking pails,

Gentle sweet mother o' mine

Where's the money to come from,

A rea, a ria, a roses,

Where's the money to come from,

Gentle sweet daughter o' mine ?

Sell my father's feather bed,

A rea, a ria, a roses,

Sell my father's feather bed,

Gentle sweet mother o' mine

What's your father to sleep on,

A rea, a ria, a roses,

What's your father to sleep on,

Gentle sweet daughter o' mine ?

Put him in the truckle bed,

A rea, a ria, a roses,

Put him in the truckle bed,

Gentle sweet mother o' mine

What are the children to sleep on,

A rea, a ria, a roses,

What are the children to sleep on,

Gentle sweet daughter o' mine ?

Put them in the pig sty,

A rea, a ria, a roses,

Put them in the pig sty,

Gentle sweet mother o' mine

What are the pigs to lie in,

A rea, a ria, a roses,

What are the pigs to lie in,

Gentle sweet daughter o' mine ?

Put them in the washing tubs,

A rea, a ria, a roses,

Put them in the washing tubs,

Gentle sweet mother o' mine

What am I to wash in,

A rea, a ria, a roses,

What am I to wash in,

Gentle sweet daughter o' mine ?

Wash in the thimble,

A rea, a ria, a roses,

Wash in the thimble,

Gentle sweet mother o' mine.

Thimble won't hold your father's shirt,

A rea, a ria, a roses,

Thimble won't hold your father's shirt,

Gentle sweet daughter o' mine

Wash in the river,

A rea, a ria, a roses,

Wash in the river,

Gentle sweet mother o' mine

Suppose the clothes should blow away,

A rea, a ria, a roses,

Suppose the clothes should blow away,

Gentle sweet daughter o' mine ?

Set a man to watch them,

A rea, a ria, a roses,

Set a man to watch them,

Gentle sweet mother o' mine

Suppose the man should go to sleep,

A rea, a ria, a roses,

Suppose the man should go to sleep,

Gentle sweet daughter o' mine ?

Take a boat and go after them,

A rea, a ria, a roses,

Take a boat and go after them,

Gentle sweet mother o' mine

Suppose the boat should be upset,

A rea, a ria, a roses,

Suppose the boat should be upset,

Gentle sweet daughter o' mine ?

Then that would be an end of you,
A rea, a ria, a roses,
 Then that would be an end of you,
Gentle sweet mother o' mine!

Note.—This poem is full of sweet music. Are there any rhymes? What makes the music? You will find it in the singing of the lines twice over, in the pretty words,

and in the running together of words beginning with the same letter. There are two very different people speaking. Choose children like these people, to speak to each other. One should be quiet and gentle, and the other active and noisy. One is timid. The other is bold. A truckle bed is a small, low bed on wheels. What does the daughter want from her mother? Why is the mother unwilling to give her what she wants? What would happen if the boat were upset?



Here are two riddles in rhyme:

A RIDDLE

As I was going to St. Ives,
 I met a man with seven wives;
 Each wife had seven sacks,
 Each sack had seven cats,
 Each cat had seven kits,
 Kits, cats, sacks and wives,
 How many were there going to St. Ives?

Answer One

MY LITTLE SISTER

I have a little sister,
 They call her Peep, Peep.
 She wades in the water
 Deep, deep, deep;
 She climbs the mountains,
 High, high, high—
 Poor little sister!
 She has but one eye

Answer A star.

Note.—The first is good practice for clear speaking, in a jolly voice. The second is a tiny song. When does a star seem to wade in the water? Why do you think the star is called "Peep"?

THE WORLD AROUND US

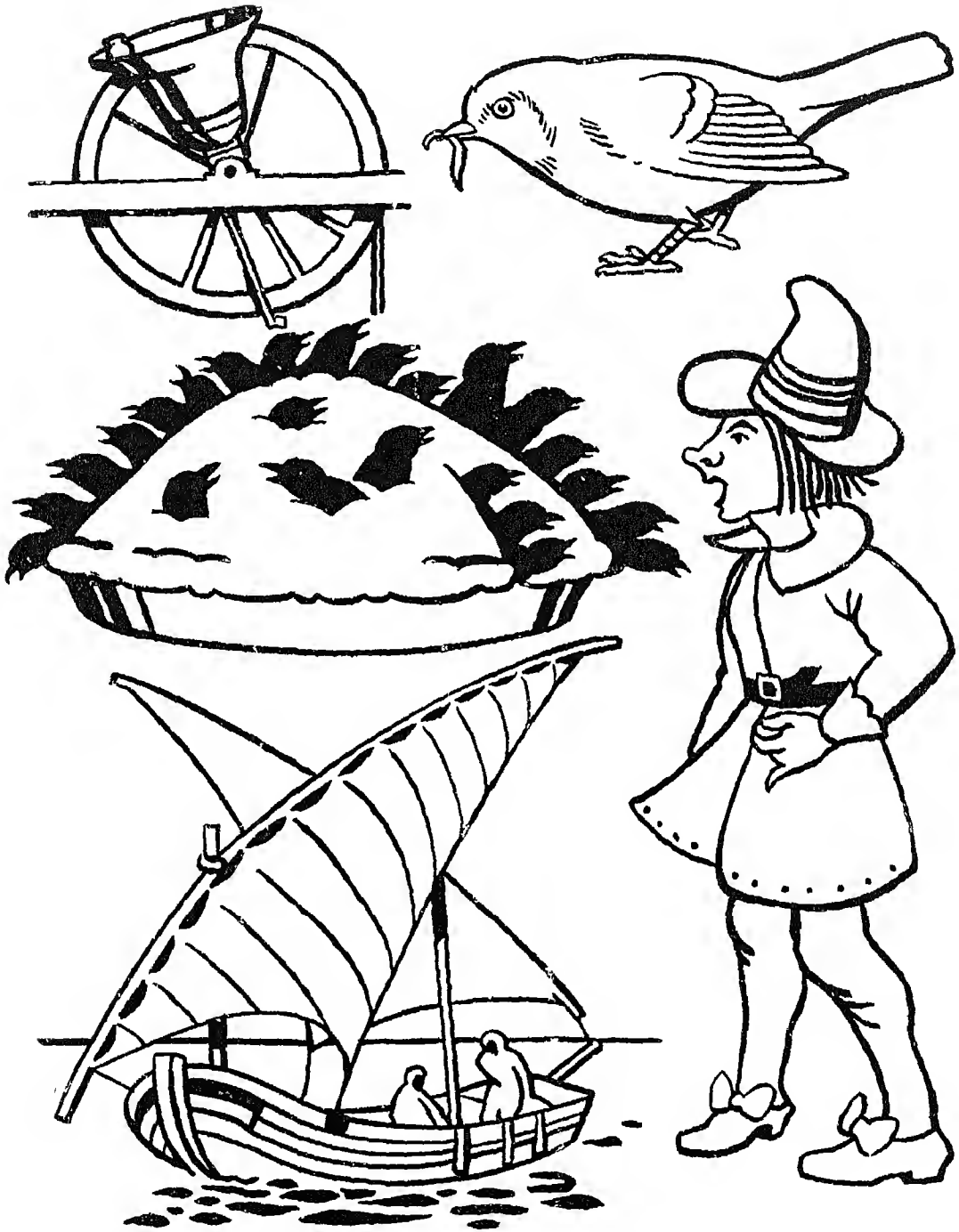


MAY DAY

Children specially delight in the poems of this section because they deal with the flowers, the birds, the tiny creatures and other wonders of nature.

Many years ago one of the jolliest days in the country was *May Day*, the first day of May. The hedges were then covered with May blossom, and these the children gathered and made into a garland. They carried it from house to house singing their songs and hoping to receive some pennies for showing a beautiful garland. The following poem is a country rhyme such as the children

SKETCHES FOR THE BLACKBOARD



BELL (*The Bells of London*)
 BLACKBIRDS IN PIE (*Sing a Song of Sixpence*)
 A NILE BOAT (*Boats Sail On The Rivers*)

ROBIN (*The North Wind*)
 SIMPLE SIMON

used to sing about May Day Country people like to hear the cuckoo, because he comes from warm lands in early spring to tell us that *our* warm days of summer will soon be here

Good morning, lords and ladies, it is the first of May,
We hope you'll view our garland, it is so sweet and gay

The cuckoo sings in April, the cuckoo sings in May,
The cuckoo sings in June, in July she flies away

The cuckoo drinks cold water to make her sing so clear,
And then she sings Cuckoo! Cuckoo! for three months in the year

I love my little brother and sister every day,
But I seem to love them better in the merry month of May

Country Rhyme.

Note—This poem has a dance-around-the-Maypole swing to it Say it quickly, and make your voice dance too A garland is a wreath of flowers, which the children hung on a pole. During which months does the cuckoo sing? Why has she a clear voice? Why should the month of May make children loving to each other?

BOATS SAIL ON THE RIVERS

Boats sail on the rivers,
And ships sail on the seas,
But clouds that sail across the sky,
Are prettier far than these

There are bridges on the rivers,
As pretty as you please,
But the bow that bridges heaven,
And overtops the trees,
And builds a road from earth to sky,
Is prettier far than these

Christina Rossetti.

Note—There is a flow of water in this poem. It is made by the lovely word "sail" Say the first three lines many times, with a light voice for the "clouds that sail" What does "bridges heaven" mean? What is the name of "the bow that bridges heaven"? Why is it prettier than the bridges over the rivers? Draw a picture of the scene, and colour it

THE STATELY LADY

I saw a stately lady
In a green gown,
When the moon was shooting
Silver arrows down.
And the stately lady
In her gown of green,
Made the sweetest curtesy
I had ever seen.

"Little lovely lady,
You must be a queen,
In your yellow satin
And your gown of green"
But the stately lady
Bowed her gracious head,
"I was made a tulip,
Not a queen," she said

Flora Sandstrom

Note—*The Stately Lady* is a poem of fancy Have you seen the moon "shooting silver arrows down"? You will find that this lady was stately, but she was not proud—she was modest. What colours would you need to paint a picture of the stately lady? What is a curtesy?



WHITE FIELDS

I

In the winter time we go
Walking in the fields of snow,

Where there is no grass at all,
Where the top of every wall,

Every fence, and every tree,
Is as white as white can be

2

Pointing out the way we came,
—Every one of them the same—

All across the fields there be
Prints in silver filigree,

And our mothers always know,
By the footprints in the snow,

Where it is the children go

James Stephens.

Note—Say this poem in a tiny voice, because of the soft snow. What are "prints in silver filigree"? How does mother know where the children have gone? Name six words that rhyme with snow. Is there really "no grass at all"? What has happened to it? Why do you love the snow?



THE MAY SONG

Spring is coming, spring is coming,
Birdies, build your nest,
Weave together straw and feather,
Doing each your best.

Spring is coming, spring is coming,
Flowers are coming too,
Pansies, lilies, daffodilles,
Now are coming through.

Spring is coming, spring is coming,
All around is fair;
Shimmer and quiver on the river,
Joy is everywhere

We wish you a happy May.

Note.—This song used to be sung on May Day, by the children of Oxfordshire. What signs have they seen of the coming of spring? How are the birds getting ready? Give the names of the early flowers. Do you know any other spring flowers? The river seems to have awakened from sleep just as the flowers have done. Sunlight is shining on it, and its waters tremble as if alive. What can you sometimes find in the river in spring time?

THE DUCK

If I were in a fairy tale,
And it were my good luck
To have a wish, I'd choose to be
A lovely snow-white duck

When she puts off into the pond
And leaves me on the brink,
She wags her stumpy tail at me,
And gives a saucy wink,

Which says as plain as words could say
I'm safe as safe can be,
Stay there, or you will drown yourself,
This pond was made for me

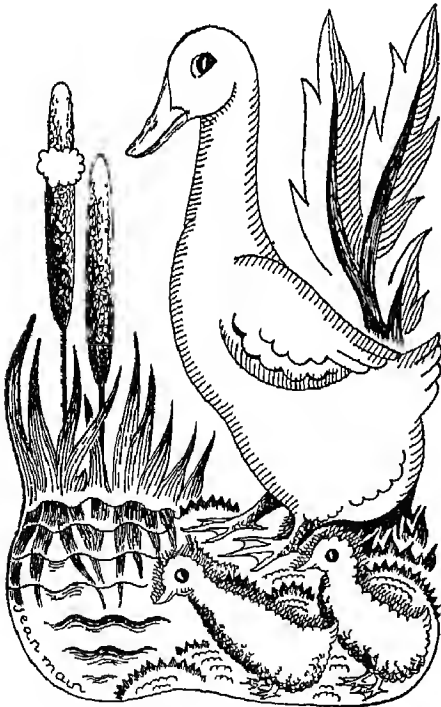
She goes a-sailing to and fro,
Just like a fishing-boat,
And steers and paddles all herself,
And never wets her coat

Then in the water, upside down,
I've often seen her stand,
More neatly than the little boys
Who do it on the land.

And best of all, her children are
The ducklings, bright as gold,
Who swim about the pond with her
And do as they are told

Edith King

Note—Here is a jolly study of Mrs Duck. She is very proud of all she can do on the water. Children would like to be able to do the same. What things does she do? Why does Edith King wish she were a duck? What can a duck do better than a boy? Which picture in this poem could you draw best? Of what colour are ducklings? The duck does not "wet her coat" because her feathers are a little oily, and the water runs off them. What is a "stumpy tail"? What do "steers" and "paddles" mean?



JACK FROST

Look out ! look out !
Jack Frost is about !
He's after our fingers and toes,

And, all through the night,
The gay little sprite
Is working when nobody knows

He'll climb each tree,
So nimble is he,
His silvery powder he'll shake,
To windows he'll creep,
And while we're asleep,
Such wonderful pictures he'll make

Across the grass
He'll merrily pass,
And change all its greenness to white,
Then home he will go,
And laugh, "Ho ! ho ! ho !"
What fun I have had in the night !

Cecily E Pike

Note—Jack Frost is the spirit of youth. He is full of fun, loves to be always busy, and has his finger in everybody's pie. Which verse would you say softly? Which is a merry verse? Where does he make his pictures? Why does he laugh? What is his "silvery powder"? What does he do to the grass? What does "nimble" mean?

A FRIEND IN THE GARDEN

The next poem is about *A Friend In The Garden*. You must read to the very end of the poem before you find out who this friend is. You will be greatly surprised

He is not John the gardener,
And yet the whole day long
Employs himself most usefully,
The flower-beds among

He is not Tom the pussy-cat,
And yet the other day,
With stealthy stride and glistening eye,
He crept upon his prey

He is not Dash the dear old dog,
And yet, perhaps, if you
Took pains with him and petted him,
You'd come to love him too

He's not a Blackbird, though he chirps,
And though he once was black,
And now he wears a loose grey coat,
All wrinkled on the back.

He's got a very dirty face,
And very shining eyes !
He sometimes comes and sits indoors,
He looks—and p'r'aps is—wise

But in a sunny flower-bed
He has his fixed abode,
He eats the things that eat my plants—
He is a friendly TOAD.

Juhana Horatia Ewing.

Note—Why is the toad a friend of the gardener ? Do you know any things that eat plants ? How does pussy walk ? What do you think was pussy's "prey" ? Where does the toad spend most of his time ?



THE LADYBIRD

Ladybird, ladybird, fly away home !
The field mouse has gone to her nest ;
The daisies have shut up their sleepy gold
eyes,
And the bees and the birds are at rest

Ladybird, ladybird, fly away home !
The glowworm is lighting her lamp,
The dew's falling fast, and your fine speckled
wings
Will flag with the close-clinging damp.

Ladybird, ladybird, fly away home !
The fairy bells tinkle afar.
Make haste, or they'll catch you and harness
you fast
With a cobweb to Oberon's car.

Charlotte T. Smith.

Note—Unless you live in the country, you will not know who was the glowworm that

lighted her lamp to guide the ladybird home
A glowworm is a curious beetle that lives in
damp banks In the evening the end of its
tail glows like a tiny lamp From a distance
the lamps look like twinkling stars

Oberon was king of the fairies His car
was drawn through the sky by butterflies,
which were harnessed to it by silken threads
The poet tells the Ladybird to hurry home,
or the fairies will catch her and make *her*
draw the car

Why must the ladybird fly away home ?
What is the colour of a daisy's eye ? Which
creatures have gone to bed ? What might
the dew do to the ladybird's wings ? How
are the ladybird's wings described in the
poem ? Draw a picture of Oberon

TWINKLE, TWINKLE, LITTLE STAR

Twinkle, twinkle, little star,
How I wonder what you are !
Up above the world so high
Like a diamond in the sky.

When the blazing sun is gone,
When he nothing shines upon,
Then you show your little light,
Twinkle, twinkle, all the night

Then the traveller in the dark
Thanks you for your tiny spark,
He could not see which way to go
If you did not tremble so

In the dark blue sky you keep,
And often through your curtains peep,
For you never shut your eye
Till the sun is in the sky

* As your bright and tiny spark
Lights the traveller in the dark,
Though I know not what you are,
Twinkle, twinkle, little star

Jane Taylor

Note—In this poem we feel the beauty of the star, and the power of its tiny spark to comfort the lonely traveller. What is "the

dark blue sky" said to be like? What good work does the star do? Why is the star like a diamond? A star is not really tiny. Why does it seem tiny to us?

THE SILENT SNAKE

The birds go fluttering in the air,
The rabbits run and skip,
Brown squirrels race along the bough,
The May flies rise and dip,
But, whilst these creatures play and leap,
The silent snake goes *creepy-creep*!

The birdies sing and whistle loud,
The busy insects hum,
The squirrels chat, the frogs say "croak!"
But the snake is always dumb
With not a sound through grasses deep
The silent snake goes *creepy-creep*!

Anon.

Note—Any boy or girl who reads well will love to say this little poem. The verses begin brightly, but how will you recite the last lines? Pick out words that sound exactly as they mean. May flies play over the rivers in May, and live only a day. How is the snake different from the other creatures? Which other creatures are spoken of? How do they talk?



BABY SEED SONG

Little brown brother, oh! little brown brother,
Are you awake in the dark?
Here we lie cosily close to each other:
Hark to the song of the lark!

"Waken!" the lark says, "waken and dress you;

Put on your green coats and gay,
Blue sky will shine on you, sunshine caress you—

Waken! 'tis morning—'tis May!"

Little brown brother, oh! little brown brother,
What kind of flower will you be?

I'll be a poppy—all white, like my mother,
Do be a poppy like me

What! You're a sunflower? How I shall miss you

When you've grown golden and high!

But I shall send all the bees up to kiss you;
Little brown brother, good-bye!

E Nesbit

Note—This is a beautiful little poem in which the tiny brown seeds in the earth are spoken of as brown babies. They are just waking from sleep. What has wakened them? What kind of seed is the little one talking? What joys are in store for him? What promise does he make to his "little brown brother"?

GRASSHOPPER GREEN

Grasshopper Green is a comical chap,
He lives on the best of fare.

Bright little trousers, jacket and cap,
These are his summer wear

Out in the meadow he loves to go,

Playing away in the sun,

It's hopperty, skipperty, high and low,
Summer's the time for fun

Grasshopper Green has a quaint little house,

It's under the hedge so gay,

Grandmother Spider, as still as a mouse,

Watches him over the way

Gladly he's calling the children, I know,

Out in the beautiful sun,

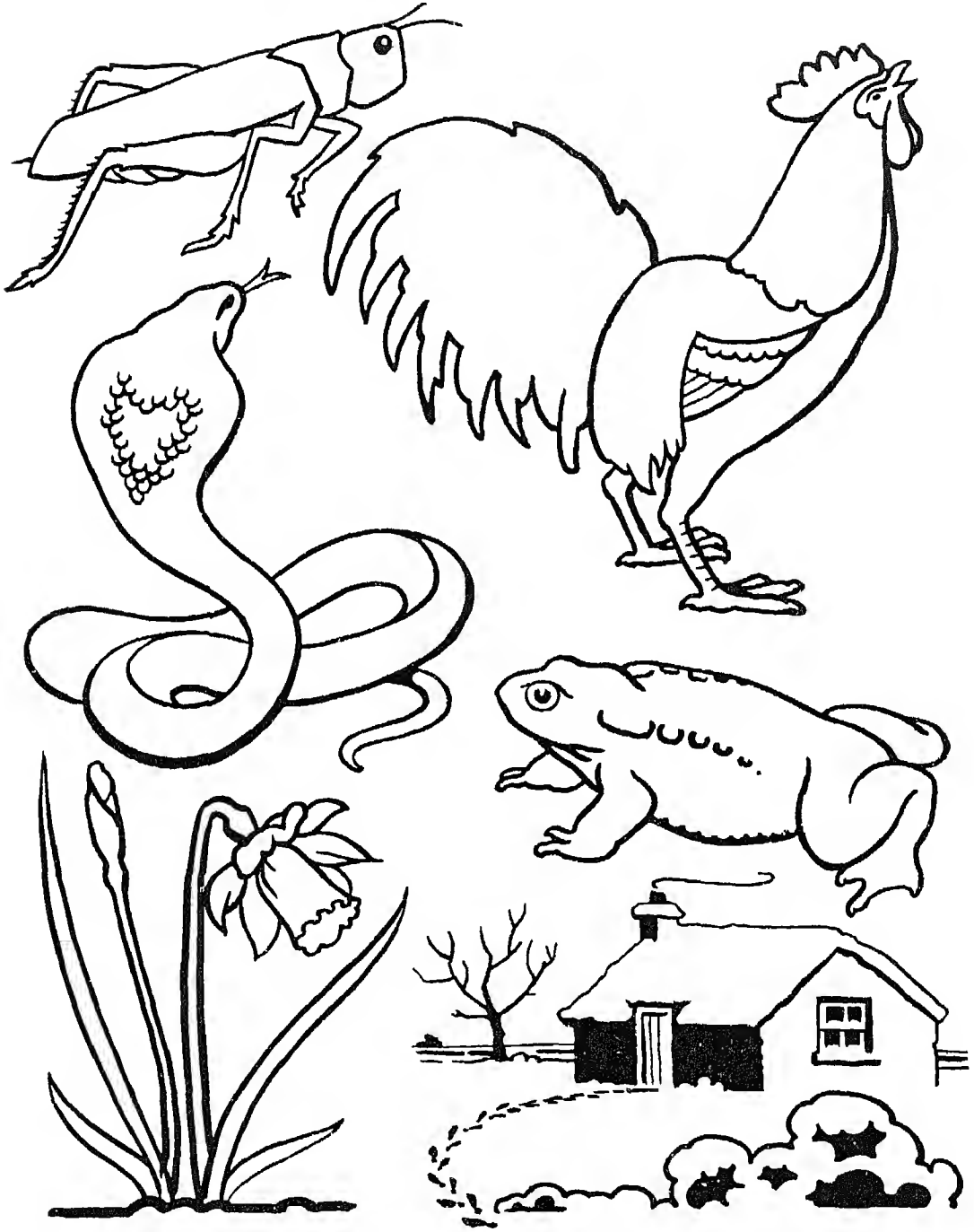
It's hopperty, skipperty, high and low,

Summer's the time for fun

Anon.

Note—Have you ever seen a grasshopper? It is a curious creature with very long hind

SKETCHES FOR THE BLACKBOARD



GRASSHOPPER (*Grasshopper Green*)
SNAKE (*The Silent Snake*)
DAFFODIL (*The May Song*)

COCK (*The Cock Is Crowing*)
TOAD (*A Friend In The Garden*)
FOOTPRINTS (*White Fields*)

legs Here is a picture of one In the country one can often hear the grasshoppers chirping in the meadows. But they do not sing like birds They make their shrill noise by rubbing their hind legs against their wing covers *Grasshopper Green* having long hind legs can dance "hopperty, skipperty, high and low" How does the grasshopper dance? What "fare" do you think he eats? What is the colour of his suit? Where does he live? Why does Grandmother Spider sit "as still as a mouse"? What will she have for supper?

THE COCK IS CROWING

The cock is crowing,
The stream is flowing,
The small birds twitter,
The lake doth glitter,
The green field sleeps in the sun.
The oldest and youngest
Are at work with the strongest,
The cattle are grazing,
Their heads never raising,
There are forty feeding like one.

W Wordsworth

Note —The joy of life is in this poem, and a love of beauty What is each one doing in the glorious sunshine? How does the long middle line help the words? What does "grazing" mean?



ONCE UPON A TIME POEMS



THE HUNTSMEN

Three jolly gentlemen,
In coats of red,
Rode their horses
Up to bed

Three jolly gentlemen
Snored till morn,
Their horses champing
The golden corn.

Three jolly gentlemen,
At break of day,
Came clitter-clatter down the stairs
And galloped away.

Waller de la Mare

Note —In this poem the music gallops along, and makes one feel how fine it would be to wear a bright red coat and ride on a horse

Which line sounds like horses galloping?
What does
"champing"
mean?
When
did the
huntsmen
get up?
What
are the
huntsmen
called?



KITTY AND MOUSEIE

Once there was a little kitty,
 White as the snow,
 In a barn she used to frolic
 Long time ago

In a barn a little mouseie
 Ran to and fro,
 For she heard the little kitty
 Long time ago

Two black eyes had little kitty,
 Black as a sloe,
 And they spied the little mouseie
 Long time ago

Four soft paws had little kitty,
 Paws soft as snow,
 And they caught the little mouseie
 Long time ago.

Nine pearl teeth had little kitty,
 All in a row,
 And they bit the little mouseie
 Long time ago

When the teeth bit little mouseie,
 Mouseie cried out, "Oh!"
 But she slipped away from kitty
 Long time ago

E Prentiss

Note—How is this pretty kitty described? "Long time ago" at the end of every verse is like the refrain of a song. Different children should say it, many times, in many voices. The poem becomes exciting in the middle, but ends quietly. What does "black as a sloe" mean? Which words rhyme with "ago"? What were kitty's teeth like? What were her paws like? What is a barn? What did mouseie do at last?

THE TWO RATS

He was a rat, and she was a rat,
 And down in one hole they did dwell,
 And both were as black as a witch's cat,
 And they loved one another well

He had a tail, and she had a tail,
 Both long, and curling, and fine,
 And each said, "Yours is the finest tail
 In the world excepting mine"

He smelt the cheese, and she smelt the cheese,
 And they both pronounced it good;
 And both remarked it would greatly add
 To the charms of their daily food.

So he ventured out, and she ventured out,
 And I saw them go with pain
 But what befell them I never can tell,
 For they never came back again.

Note—This poem is very amusing, because the rats copy each other. Describe them. What does "pronounced" mean? What is a witch? Why did they "venture out"? What do you think happened to them?

THE THREE LITTLE PIGS

The Three Little Pigs were very foolish little pigs, as you will find out when you read the story about them

A jolly old sow once lived in a sty,
 And three little piggies had she,
 And she waddled about saying, "Umph!
 umph! umph!"
 While the little ones said, "Wee! wee!"

"My dear little brothers," said one of the brats,
 "My dear little piggies," said he,
 "Let us all for the future say, 'Umph!
 umph! umph!'
 'Tis so childish to say, 'Wee! wee!'"

Then these three little pigs grew skinny and lean,
 And lean they might very well be;
 For somehow they *couldn't* say, "Umph!
 umph! umph!"
 And they *wouldn't* say, "Wee! wee!
 wee!"

So after a time these little pigs died,
 They all died of *felo-de-se*;
 From trying too hard to say, "Umph !
 umph ! umph !"
 When they only could say, "Wee ! wee !"

MORAL

A moral there is to this little song,
 A moral that's easy to see;
 Don't try while yet young to say, "Umph !
 umph ! umph !"
 For you only can say, "Wee ! wee !"

Sir Alfred A. Scott-Gatty

Note—The little pigs starved till they died because they worried so about saying "Umph ! umph ! umph !" and they had no time to eat their dinner and tea. When a person dies by his own action he is called a *felo-de-se*. Suppose you say you will not eat anything until you can talk like a man, what will happen ? What is a mother pig called ? How did she walk about ? How did the little pigs become different ? The "moral" is the teaching of the poem, which tells us what we may learn from the story of these three little pigs. What wrong thing did the little pigs do ?

GOOD NIGHT AND GOOD MORNING

A fair little girl sat under a tree,
 Sewing as long as her eyes could see,
 Then smoothed her work, and folded it right,
 And said, "Dear Work, Good Night ! Good
 Night !"

Such a number of rooks came over her head,
 Cryng, "Caw ! caw !" on their way to bed,
 She said, as she watched their curious flight,
 "Little black things, Good Night ! Good
 Night !"

The horses neighed, and the oxen lowed,
 The sheep's "Bleat ! bleat !" came over the
 road;
 All seeming to say with a quiet delight,
 "Good little girl, Good Night ! Good Night !"

She did not say to the sun, "Good Night !"
 Though she saw him there, like a ball of
 light,
 For she knew he had God's time to keep
 All over the world, and never could sleep

The tall pink foxglove bowed his head—
 The violets curtsied and went to bed,
 And good little Lucy tied up her hair,
 And said, on her knees, her favourite prayer

And while on her pillow she softly lay
 She knew nothing more till again it was day
 And all things said to the beautiful sun,
 "Good Morning ! Good Morning ! our work
 is begun !"

Lord Houghton

Note—This is not a lively poem. Its long lines have a peaceful music in them, to suit the evening time, and the gentle little girl. The poem should be said smoothly. Lucy loved everything she saw and did, and so everything loved her. What was the sun doing while Lucy slept ? Describe Lucy. What did Lucy say to her work ? What did the rooks and sheep say ? Which flowers went to sleep ? How did all things greet the morning sun ?

MUSTARD AND CRESS

Perhaps I had better tell you something about *Mustard and Cress*. If you go to a seed merchant and buy two-pennyworth of mustard seed or two-pennyworth of cress seed, you can plant the seed in your garden and make a letter of your name come up "green and bonny." With a stick mark out the first letter of your name like capital **B**; put the seeds rather thickly in the marks and cover them with a little soil. In a few days the plants will come up making a pretty green **B**.

Elizabeth, my cousin, is the sweetest little girl,
 From her eyes like dark blue pansies, to her
 tiniest golden curl,

I do not use her great long name, but simply
call her Bess,
And yesterday I planted her in mustard and
in cress.

My garden is so narrow that there's very
little room,
But I'd rather have her name than get a
hollyhock to bloom,
And before she comes to visit us with Charley
and with Jess,
She'll pop up green and bonny out of mustard
and of cress

Norman Gale

Note—How can you spell Elizabeth in
four letters? What does Norman Gale
mean when he says that his cousin Elizabeth
will *pop up green and bonny*?

What colour was Elizabeth's hair? What
were her eyes like? Have you a hollyhock
in your garden? What grows in your
garden? What do we do with mustard and
cress?

THE BOY WITH THE LITTLE BARE TOES

Here is a very funny story about *The Boy With The Little Bare Toes*. He felt so very happy in his bare feet as he ran along the wet grass down the meadow. Then, like all little boys, he wanted to climb a tree, so up he went and found a big hole. Was there money in the hole? Or was there honey in the hole? Oh no! but something far nicer than these. And then such a funny thing happened—but you must read the poem to find out what it was.

He ran all down the meadow, that he did,
The boy with the little bare toes
The flowers they smelt so sweet, so sweet
And the grass it felt so funny and wet
And the birds sang just like this—"chereep!"
And the willow trees stood in rows.
"Ho! ho!"
Laughed the boy with the little bare toes

Now the trees had no insides—how funny!
Laughed the boy with the little bare toes
And he put in his hand to find some money
Or honey—yes, that would be best—oh, best!
But what do you think he found, found,
found?

Why, six little eggs all round, round, round,
And a mother-bird on the nest,
Oh, yes!

The mother-bird on her nest

He laughed, "Ha! ha!" and he laughed,
"He! he!"

The boy with the little bare toes.
But the little mother-bird got up from her
place

And flew right into his face, ho! ho!
And pecked him on the nose, "Oh! oh!"
Yes, pecked him right on the nose
"Boo! Boo!"

Cried the boy with the little bare toes

F W Harvey.

Note—What did the birds sing to this
little boy? What other words sound like
birds' notes? What did the little boy find
in the hole? Why did the mother-bird
peck him? What did he do then?



A TRAGIC STORY

There lived a sage in days of yore,
And he a handsome pigtail wore,
And wondered much and sorrowed more
Because it hung behind him

He mused upon this curious case,
And swore he'd change the pigtail's place,
And have it hanging at his face,
Not dangling there behind him

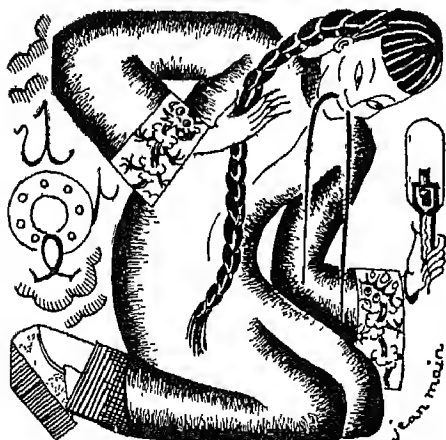
Says he, "The mystery I've found—
I'll turn me round"—he turned him round,
And round and round, and round and round,
But still it hung behind him

Then round and round, and out and in,
All day the puzzled sage did spin,
In vain—it mattered not a pin—
The pigtail hung behind him

And though his efforts never slack,
And though he twist, and twirl, and tack,
Alas! still faithful to his back,
The pigtail hangs behind him

W M Thackeray

Note—A sage is a very wise man Was this man really a sage? Is the poem really a tragic story? We see that the clever poet is laughing at his sage, while pretending to be sorry for him This makes us laugh, too Which words describe the sage's movements? Why was he puzzled? What was he trying to do? Why did he want his pigtail in front? Why is it better for a pigtail to hang behind? Find the words which rhyme in this poem Which lines help us to see the sage spinning round?



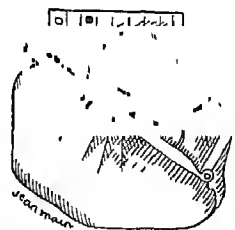
MISCELLANEOUS POEMS

THE FERRYMAN

"Ferry me across the water,
Do, boatman, do"
"If you've a penny in your purse,
I'll ferry you"
"I have a penny in my purse,
And my eyes are blue
So ferry me across the water,
Do, boatman, do."
"Step into my ferry-boat,
Be they black or blue,
And for the penny in your purse
I'll ferry you"

Christina G. Rossetti.

Note—This poem dances like a boat on the water Boys and girls should take parts in saying it, with actions What do you notice about the rhymes? This plan makes the poem simple, and one whole, as it is meant to be A ferry-boat passes to and fro over a river. How much did the ferryman charge for the crossing? Which line is pleading?



THE SCISSOR-MAN

Sing a song of Scissor-men,
"Mend a broken plate,
Bring your knives and garden shears,
I'll do them while you wait.
Buzz-a-wuzz! Buzz-a-wuzz!
Fast the wheel or slow,
Ticker Tacker! Ticker Tack!
Rivets in a row"

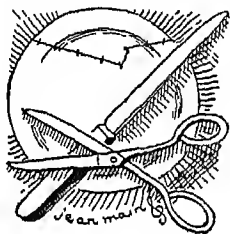
Sing a song of Scissor-men,
Sitting in the sun,

Sing it when the day begins,
Sing it when it's done
Be it hard or be it soft,
Here's a jolly plan,
Sing to make the work go well,
Like the Scissor-man

Madeleine Nightingale.

Note—Which words imitate the sounds made by the scissor-man at work? The poem has a lively swing Which Nursery Rhyme has the same tune?

How can we all be like the scissor-man?
What goods will he mend? What will he sharpen?
How long will he take?



SONG FOR A BALL-GAME

Bounce ball! Bounce ball!
One—two—three.

Underneath my right leg
And round about my knee

Bounce ball! Bounce ball!
Bird—or—bee

Flying from the rose-bud
Up into the tree

Bounce ball! Bounce ball!
Fast—you—go

Underneath my left leg
And round about my toe

Bounce ball! Bounce ball!
Butt—er—fly

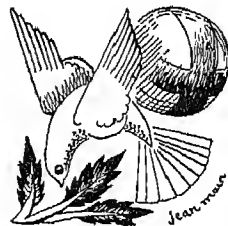
Flying from the rose-bud
Up into the sky

Bounce ball! Bounce ball!
You—can't—stop

Right leg and left leg
Round them both you hop

Bounce ball! Bounce ball!
Shy—white—dove,
Tell me how to find him,
My own true love

Wilfrid Thorley



Note—Learn this poem, and try to sing it while you are bouncing your ball. The music hops just like a bouncing ball Which letter begins many of the words? Why? To what creatures does the happy little girl sing while she bounces her ball?

THE LITTLE LORD JESUS

Away in a manger, no crib for a bed,
The little Lord Jesus laid down His sweet head

The stars in the bright sky looked down
where He lay—

The little Lord Jesus asleep on the hay.

The cattle are lowing, the baby awakes,
But little Lord Jesus no crying He makes
I love Thee, Lord Jesus! look down from the sky,

And stay by my cradle till morning is nigh

Be near me, Lord Jesus, I ask Thee to stay
Close by me for ever and love me, I pray,
Bless all the dear children in Thy tender care,
And fit us for Heaven, to live with Thee there

From the German

Note—This is a beautiful little German cradle-song, singing of Jesus in His poor manger, and asking Him to protect other little children as helpless as He once was. What is the meaning of "no crib for a bed"?

Which line should be only whispered ?
 What sounds woke the little Lord Jesus from
 sleep ? What does "lowing" mean ? How
 does the poem tell us that Jesus was a good
 little baby ?

MATILDA JANE

Matilda Jane, you never look
 At any toy or picture book,
 I show you pretty things in vain,
 You must be blind, Matilda Jane.

I ask you riddles, tell you tales,
 But all our conversation fails,
 You never answer me again,
 I fear you're dumb, Matilda Jane

Matilda, darling, when I call
 You never seem to hear at all,
 I shout with all my might and main,
 But you're so deaf, Matilda Jane

Matilda Jane, you needn't mind,
 For though you're deaf and dumb and blind,
 There's someone loves you, it is plain,
 And that is *me*, Matilda Jane

Lewis Carroll.

Note—Who do you think Matilda Jane is? What things will she not do? Try saying this poem to your own "Matilda Jane" and give her a big hug at the end. What does "dumb" mean? What does Matilda's mistress do to try and make Matilda hear her? What is "conversation"? Why does their conversation fail? What riddles do you know?

CHOOSING SHOES

New shoes, new shoes,
 Red and pink and blue shoes,
 Tell me, what would *you* choose,
 If they'd let us buy?

Buckle shoes, bow shoes,
 Pretty pointy-toe shoes,
 Strappy, cappy low shoes,
 Let's have some to try

Bright shoes, white shoes,
 Dandy-dance-by-night shoes—
 Perhaps-a-little-tight shoes,
 Like some? so would I

BUT

Flat shoes, fat shoes,
 Stump-along-like-that shoes,
 Wipe-them-on-the-mat shoes,
 That's the sort they'll buy

ffrida Wolfe

Note—A child is in need of some new shoes, so is taken to the shop. She wishes she could choose her own. What sort would she buy then? She cannot think of one word alone to describe the pretty shoes, so what does she do to tell you what they are like? What does "dandy" mean? The poem is dancing, dainty and light, until you reach the last verse. Then you must change your voice. What makes us laugh at the end? Which shoes would *you* choose if you could? Why do her parents buy "flat shoes, fat shoes" for their little girl?

JACK-OF-THE-INKPOT

I suppose that sometimes, when you are writing with pen and ink, you make a blot on your book, or make your fingers black and inky. And then you feel cross. If it keeps on happening, perhaps you want to cry. But here is a poem which will help you to laugh about it. The poem is called *Jack-of-the-Inkpot*. It was written by Algeron Blackwood, a clever author who knows a great deal about fairies.

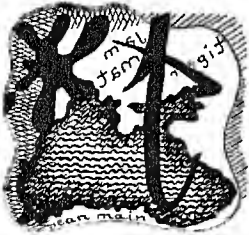
I dance on your paper,
 I hide in your pen,
 I make in your inkstand
 My little black den,
 And when you're not looking
 I hop on your nose,
 And leave on your forehead
 The marks of my toes

When you're trying to finish
 Your "i" with a dot,
 I slip down your finger
 And make it a blot,
 And when you're so busy
 To cross a big "t,"
 I make on the paper
 A little Black Sea

I drink blotting paper,
 Eat penwiper pie,
 You never can catch me,
 You never need try!
 I leap any distance,
 I use any ink,
 I'm on to your fingers
 Before you can wink

Algernon Blackwood

Note—What does Jack call his house? What does he eat and drink? How quickly can he leap? There is a large sea in the world called the "Black Sea," but it is not black as Jack's "Black Sea" is. What does Jack do with blotting paper? What is a penwiper? Name all the spots on which Jack jumps



DO YOU EVER?

In *Do You Ever?* the child pretends that he is grown up like father and wears very squeaky boots. You will see why he likes these boots when you read the poem.

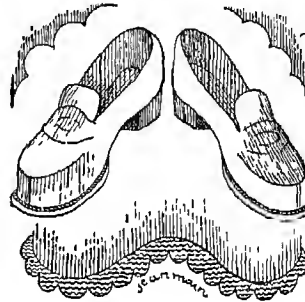
I'm walking up and down the hall,
 My shoes a happy squeaking make,
 It is a lovely noise! I hope
 It's not because my new shoes ache.
 I walk to hear it when I can,
 Turning my toes out, like a man

S—VOL I

When I have children, I shall buy
 The squeakiest shoes that I can find
 And walk about the house, my hands
 Clapsed close together tight behind
 And when my children hear, they'll say,
 "Here's Daddy coming home Hurray!"

Flora Sandström.

Note—Why does the child want to be grown up like father? How does the child walk? Do you like squeaky shoes? This poem swings along at a steady walk. Say it walking up and down like the boy in the picture



MY SHIP AND I

Sometimes a poem is jolly because it *sounds* jolly, and not because of the funny pictures in it. One of the jolliest poems ever written is *My Ship And I*, by Robert Louis Stevenson. The second stanza is the jolliest of all, for it makes us feel that we are sailing on the vessel that "goes a divie-divie-dive"

O it's I that am the captain of a tidy little ship,

Of a ship that goes a-sailing on the pond,
 And my ship it keeps a-turning all around
 and all about,

But when I'm a little older, I shall find the
 secret out

How to send my vessel sailing on beyond.

For I mean to grow as little as the dolly at
 the helm,

And the dolly I intend to come alive,

And with him beside to help me, it's a-sailing
 I shall go,
 It's a-sailing on the water, when the jolly
 breezes blow
 And the vessel goes a divie-divie-dive.

O it's then you'll see me sailing through the
 rushes and the reeds,
 And you'll hear the water singing at the
 prow,
 For beside the dolly sailor, I'm to voyage and
 explore,
 To land upon the island where no dolly was
 before,
 And to fire the penny cannon in the bow.

Robert Louis Stevenson

Note—What will happen to my ship when I sail it on the sea and the jolly breezes blow? Why did Robert Louis Stevenson want to grow as little as the dolly? What do you think a "tidy little ship" is? How many are going a-sailing in the ship? The prow is the front end of the ship. Why would the water sing round the prow? Where is the ship sailing? What are rushes and reeds? What does "explore" mean? What will the captain do when he lands on the island?

A CHRISTMAS VISITOR

He comes in the night ! he comes in the night !
 He softly, silently comes,
 While the little brown heads on the pillows
 so white
 Are dreaming of bugles and drums

He cuts through the snow like a ship through
 the foam,
 While the white flakes around him whirl,
 Who tells him I know not, but he findeth the
 home
 Of each good little boy and girl

His sleigh it is long, and deep, and wide,
 It will carry a host of things,
 While dozens of drums hang over the side,
 With the sticks sticking under the strings

And yet not the sound of a drum is heard,
 Not a bugle blast is blown,
 As he mounts to the chimney-top like a bird,
 And drops to the hearth like a stone

The little red stockings he silently fills,
 Till the stockings will hold no more,
 The bright little sleds for the great snow hills
 Are quickly set down on the floor.

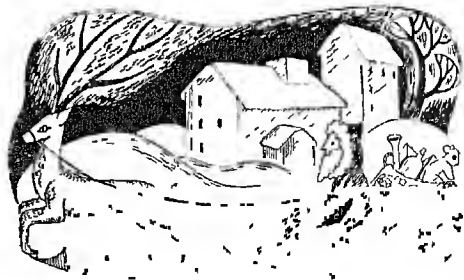
Then Santa Claus mounts to the roof like a
 bird,
 And glides to his seat in the sleigh,
 Not the sound of a bugle or drum is heard
 As he noiselessly gallops away

He rides to the East, and he rides to the West,
 Of his goodies he touches not one,
 He eateth the crumbs of the Christmas feast
 When the dear little folks are done

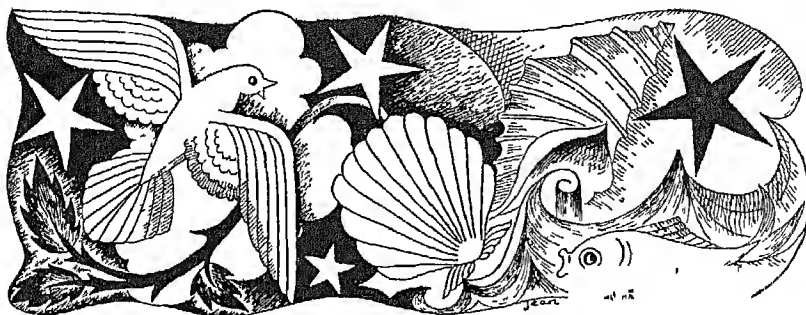
Old Santa Claus doeth all that he can,
 This beautiful mission is his,
 Then, children, be good to the little old man
 When you find who the little man is

George Cooper.

Note—This poem dwells on the kindness of Santa Claus. What kind things does he do? The poem should be said slowly and softly, because Santa Claus moves very quietly. Why? What kind of children will you be if you do not obey the last two lines? What is a bugle? Why is Santa Claus like a bird? What is a sleigh? Why does Santa Claus use a sleigh instead of a motor car? What animals are supposed to pull his sleigh along? What presents has Santa Claus ever brought you?



POEMS FAIRY AND FANCIFUL



THE LAMPLIGHTERS

When I am snug and cosy
And all tucked up in bed,
I'm not afraid, for, when it's dark,
I hear the fairies tread

Their footsteps softly twinkle
Up the blue velvet sky,
They're lighting up the fairy lamps—
The little stars on high.

Note.—In this poem the child feels that the light of the stars protects him through the night. What pretty name does he call the stars? Who are the lamplighters? What is the sky said to be? How does the child feel when in bed? Why is he not afraid of the dark? Have you ever seen the lamplighter in your road? What does he do?

IF YOU SEE A FAIRY RING

The following poem tells us about the *Fairy Rings*, which we often see in the meadows. Some people say that the rings are made by the tiny feet of the fairies as they dance round and round in the moonlight. In one verse a fairy is called a *tiny fay*. You must step away on tiptoe when you see a ring where the fairies have been frolicking or playing, for if you do not you will spoil their magic.

If you see a fairy ring
In a field of grass,
Very lightly step around,
Tiptoe as you pass;
Last night fairies frolicked here,
And they're sleeping somewhere near

If you see a tiny fay
Lying fast asleep,
Shut your eyes and run away,
Do not stay to peep,
And be sure you *never* tell,
Or you'll break a fairy spell

Note.—Why must you not tread on a fairy ring? What games do you think fairies play? Try to say the poem daintily, as it is about fairies. What should you do if you ever saw a fairy asleep? Why must you never tell anybody? Where do you think you might find sleeping fairies?

MINNIE AND WINNIE

Minnie and Winnie
Slept in a shell
Sleep, little ladies!
And they slept well

Pink was the shell within,
Silver without,
Sounds of the great sea
Wander'd about.

Sleep, little ladies !
Wake not soon !
Echo on echo
Dies to the moon.

Two bright stars
Peep'd into the shell
"What are they dreaming of ?
Who can tell ?"

Started a green linnet
Out of the croft,
Wake, little ladies !
The sun is aloft !

Lord Tennyson.

Note—Two little fairies have crept into a shell by the seashore for the night. What lines catch the sound of the waves rising and falling all night long ? What is a croft ? Who saw Minnie and Winnie asleep ? Who woke them up ? What colours would you need to paint a picture of their shell ? Name six words that rhyme with shell. What song did the linnet sing ? What did the stars say ?



LADY MOON

Lady Moon, Lady Moon, where are you
roving ?

Over the sea

Lady Moon, Lady Moon, whom are you
loving ?

All that love me

Are you not tired with roving, and never
Resting to sleep ?
Why look so pale and so sad, as for ever
Wishing to weep ?

*Ask me not this, little child, if you love me ,
You are too bold.*

*I must obey my dear Father above me,
And do as I'm told*

Lady Moon, Lady Moon, where are you
roving ?

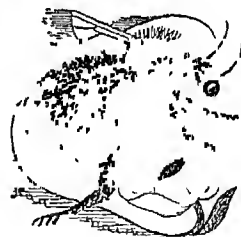
Over the sea

Lady Moon, Lady Moon, whom are you
loving ?

All that love me

Lord Houghton

Note—The music in this poem is like the rolling waves of the sea. Which line is a picture of the moon over the water ? What kind of voice should the moon have ? Try to speak her beautiful words exactly as you think she would say them. Whom does the moon love ? What does "roving" mean ? The moon does not explain why she is always moving. Who guides her on her way ?



THE FAIRY² AND THE BEE

The Fairy and The Bee tells a pretty story. In one place the fairy is called a *tiny sprite*. The bee was very, very cross with her because she had sipped his honey from the flower.

A fairy sat in a buttercup
To rest for a little while ;
Her weary wings were folded up
In quite the latest style

The soft breeze rocked her tenderly
 Until she fell asleep;
 And, by and by, a hungry bee
 Came near enough to peep.

He buzzed around the tiny sprite,
 As cross as cross could be
 To think a fairy should have sipped
 His honey for her tea!

Out came his sting, but just in time
 The fairy showed her head,
 And, when she raised her magic wand,
 The bee in terror fled

E.L.

Note—Can you tell the story in your own words? Who rocked the fairy to sleep? Why was the bee cross? Why was the bee frightened?



THE CUCKOO

I suppose that you know what a naughty bird the Cuckoo is. She lays her eggs in the nest of another bird and never takes the trouble to look after her own eggs or her babies. But Rose Fyleman says that the fairies catch them sometimes and *dock*, or clip their wings, then—but that is a secret for you to find out!

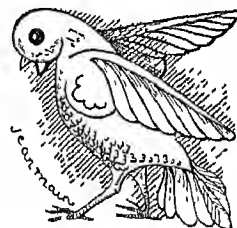
The Cuckoo is a tell-tale,
 A mischief-making bird,
 He flies to East, he flies to West
 And whispers into every nest

The wicked things he's heard,
 He loves to spread his naughty lies,
 He laughs about it as he flies
*"Cuckoo," he cries, "cuckoo, cuckoo,
 It's true, it's true"*

And when the fairies catch him
 His busy wings they dock,
 They shut him up for evermore
 (He may not go beyond the door)
 Inside a wooden clock,
 Inside a wooden clock he cowers,
 And has to tell the proper hours—
*"Cuckoo," he cries, "cuckoo, cuckoo,
 It's true, it's true"*

Rose Fyleman.

Note—What do the fairies do with the cuckoo when they catch him? Why? What is the cuckoo called in the poem? How does he make mischief? Is he sorry for this? What does "cowers" mean? What work must he do as punishment for his naughty ways? Which is your favourite bird? Have you ever seen a cuckoo clock? When does the cuckoo come out of it? (See blackboard sketch page 261)



THE CANARY

He used to be a fairy once,
 A little singing fairy;
 He would not work, he would not play,
 He only sat and sang all day—
 So now he's a canary.

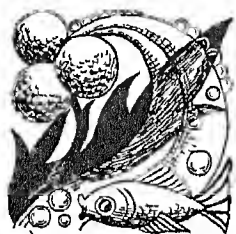
They sent him out of fairyland,
 They sent him here to me
 The day that I was six years old,
 His little house of shining gold
 Hangs in the nursery.

He's taught me lots of lovely things
 I never should have guessed,
 He's told me what they say and do
 (They all have wings—it's really true)
 And how the Queen is dressed

He flits about the house at night
 A little lonely fairy,
 But nobody is there to see,
 And no one knows—excepting me—
 He's not a real canary.

Rose Fyleman.

Note—Supposing the fairy canary told you his secrets, what do you think he would say? Why is he lonely at night? Why was the fairy changed into a canary? How old was the little girl when he came to her? Where does he live? What does he do in the daytime?



QUEEN MAB

A little fairy comes at night,
 Her eyes are blue, her hair is brown,
 With silver spots upon her wings,
 And from the moon she flutters down

She has a little silver wand,
 And when a good child goes to bed
 She waves her wand from right to left,
 And makes a circle round its head

And then it dreams of pleasant things,
 Of fountains filled with fairy fish,
 And trees that bear delicious fruit
 And bow their branches at a wish:

Of arbours filled with dainty scents
 From lovely flowers that never fade,
 Bright flies that glitter in the sun,
 And glowworms shining in the shade

And talking birds with gifted tongues,
 For singing songs and telling tales,
 And pretty dwarfs to show the way
 Through fairy hills and fairy dales

Thomas Hood

Note—The Queen of the fairies has a magic wand. What has it power to do? What lovely dreams have you ever had? Describe Queen Mab. The lines flow gracefully because many words beginning with the same letter run along side by side, such as "fountains filled with fairy fish." Can you find others? What does Queen Mab do with her wand? What are arbours? What are hills and dales? Of what pleasant things does a good child dream?

MY TOYS

Read the poem, *My Toys*. When you come to the end of it, you will find the word *imagine*, and that line will help you to remember what the word means. Instead of saying, "I'll *imagine* them playing," you can say "I'll *pretend* they are playing."

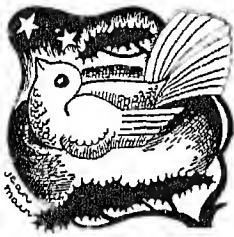
I really believe, in the nighttime
 When I am asleep in my bed,
 That my toys get up out of their boxes
 And dance on the carpet instead,
 For when I get up in the morning,
 They're not where I put them at night,
 I'm sure that the pistol goes popping—
 I'm certain the soldier-boys fight!

The old Noah's Ark in the cupboard
 I know goes a-floating away,
 Till it reaches a mountain of cushions,
 And there does it settle and stay,
 And the animals march out in order—
 The lion and leopard and bear
 I wish that I wasn't so sleepy,
 For I should so love to be there

The humming top hums, I am certain,
 And spins near the nursery door,
 The marbles go hunting in couples,
 And go for a roll on the floor.
 The picture books jump from the table,
 With pages that flutter and fly,
 And the big yellow ball in the corner
 Goes creepily, creepily by!

I wish that I wasn't so sleepy,
 For then I should stay up and see
 The toys that I keep in my cupboard
 Go jumping and hopping round me.
 Oh ! it would be jolly to catch them,
 When they thought I was safely in bed;
 But as they don't come when you watch
 them,
 I'll imagine them playing instead.

Note—Why can't I see my toys dancing at night ? How does my big ball roll about ? Why must I *pretend* that my toys are playing ? Name all the things that the toys do, such as "dance" or "hop" Where does the Noah's Ark sail ? What animals march out of the Ark ? What other wild animals do you know ? What toys have you at home ?



JAPANESE LULLABY

Sleep, little pigeon, and fold your wings,—
 Little blue pigeon with velvet eyes,
 Sleep to the singing of mother-bird swinging—
 Swinging the nest where her little one lies

Away out yonder I see a star,—
 Silvery star with a tinkling song;
 To the soft dew falling I hear it calling—
 Calling and tinkling the night along.

In through the window a moonbeam comes—
 Little gold moonbeam with misty wings,
 All silently creeping, it asks, "Is he sleeping—
 Sleeping and dreaming while mother sings ?"

But sleep, little pigeon, and fold your wings—
 Little blue pigeon, with mournful eyes
 Am I not singing ?—see, I am swinging—
 Swinging the nest where my darling lies

Eugene Field

Note—With what pretty bird does this Japanese mother compare her baby ? What kind of eyes do you think are velvet eyes ? There is a lovely swing in these long lines Of what does it remind you ? Find a line that is a good example of this. What verse should be said very softly ? Which word describes the music of a star ? What does "mournful" mean ? Draw a picture of a moonbeam "with misty wings", like a fairy, and colour it

WYNKEN, BLYNKEN, AND NOD

Wynken, Blynken and Nod one night
 Sailed off in a wooden shoe—
 Sailed on a river of misty light
 Into a sea of dew
 "Where are you going, and what do you wish ?"
 The old moon asked the three
 "We have come to fish for the herring-fish
 That live in this beautiful sea,
 Nets of silver and gold have we,"
 Said Wynken,
 Blynken,
 And Nod.

The old moon laughed and sang a song,
 As they rocked in the wooden shoe;
 And the wind that sped them all night
 long
 Ruffled the waves of dew,
 The little stars were the herring-fish
 That lived in that beautiful sea.
 "Now cast your nets wherever you wish,
 But never afear'd are we !"
 So cried the stars to the fishermen three,
 Wynken,
 Blynken,
 And Nod.

All night long their nets they threw
 For the fish in the twinkling foam,
 Then down from the sky came the wooden
 shoe,
 Bringing the fishermen home,

'Twas all so pretty a sail, it seemed
 As if it could not be;
 And some folks thought 'twas a dream they
 dreamed
 Of sailing that beautiful sea;
 But I shall name you the fishermen three
 Wynken,
 Blynken,
 And Nod.

Wynken and Blynken are two little eyes,
 And Nod is a little head,
 And the wooden shoe that sailed the skies
 Is a wee one's trundle-bed,
 So shut your eyes while mother sings
 Of wonderful sights that be,
 And you shall see the beautiful things
 As you rock in the misty sea,
 Where the old shoe rocked the fishermen
 three—
 Wynken,
 Blynken,
 And Nod

Eugene Field

Note—This is the story of a fairy voyage
 What was the boat? It sailed up and up
 on a moonbeam river, into the clouds.
 How many were in the boat? What were
 they going to do? What fish were they
 after? What did the moon and the stars
 say to them? What did this fairy voyage
 prove to be after all? The song has a
 rocking, sleepy swing Draw a picture of
 the "fishermen three."

THE ROCK-A-BY LADY

The Rock-a-By Lady from Hush-a-By Street
 Comes stealing; comes creeping,
 The poppies they hang from her head to her
 feet,

And each hath a dream that is tiny and fleet—
 She bringeth her poppies to you, my sweet,
 When she findeth you sleeping!

There is one little dream of a beautiful drum—
 "Rub-a-dub!" it goeth,
 There is one little dream of a big sugar-plum,
 And lo! thick and fast the other dreams come
 Of popguns that bang, and tin tops that hum,
 And a trumpet that bloweth!

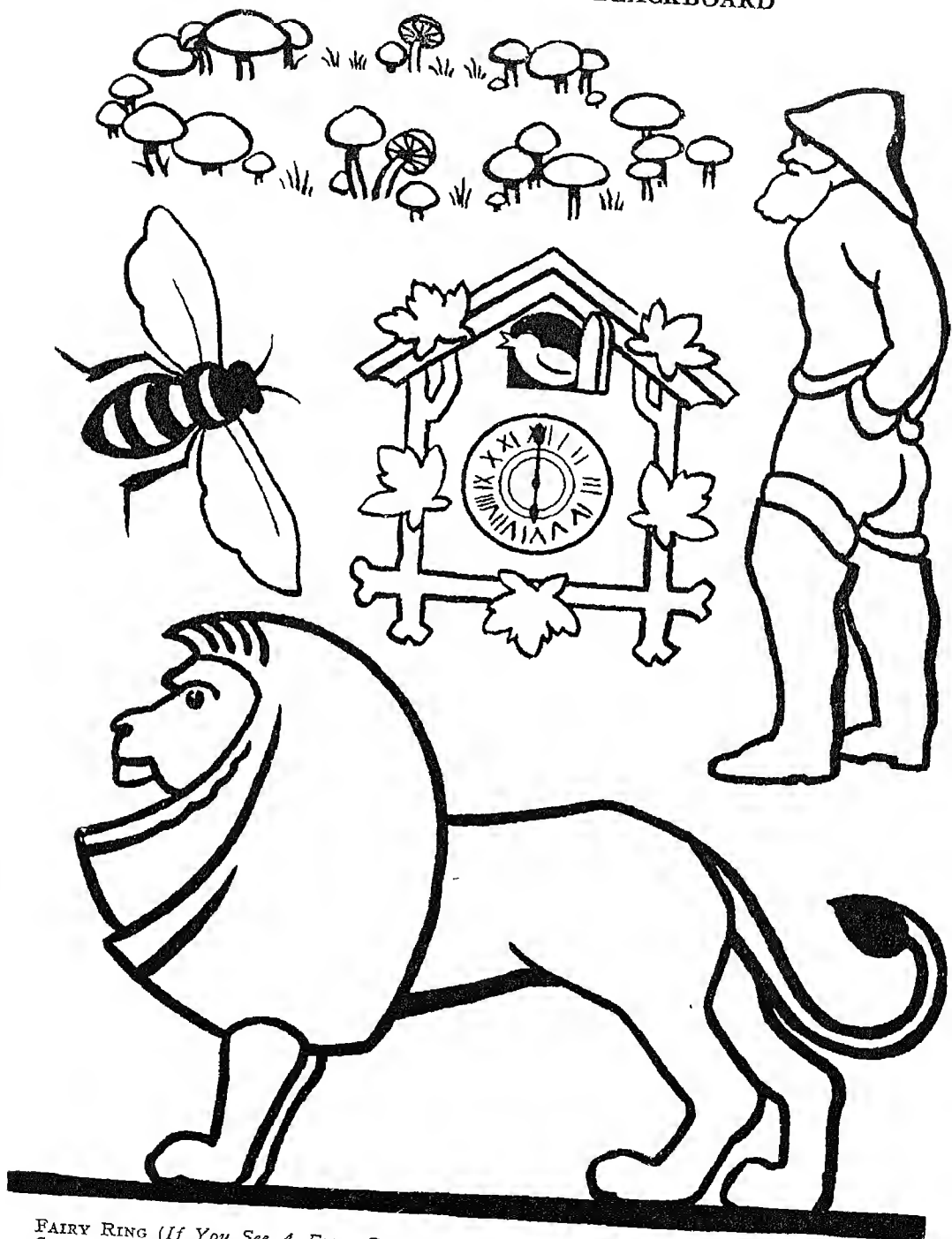
And dollies peep out of those wee little dreams
 With laughter and singing,
 And boats go a-floating on silvery streams,
 And the stars peek-a-boo with their own
 misty gleams,
 And up, up, and up, where the Mother Moon
 beams,
 The fairies go winging!

Would you dream all these dreams that are
 tiny and fleet?
 They'll come to you sleeping,
 So shut the two eyes that are weary, my
 sweet,
 For the Rock-a-By Lady from Hush-a-By
 Street,
 With poppies that hang from her head to her
 feet,
 Comes stealing, comes creeping

Eugene Field.

Note.—This is a pretty fairy story told
 by a mother to her little one, to send it to
 sleep "Sleep," she says, "and this lovely
 lady will visit you" The lady wears
 poppies, because their juice brings sleep
 Of what will the baby dream? What does
 peek-a-boo mean? Which lines should be
 said softly and sleepily? Which words
 have a drowsy sound? The music of the
 second verse runs louder and faster Why?

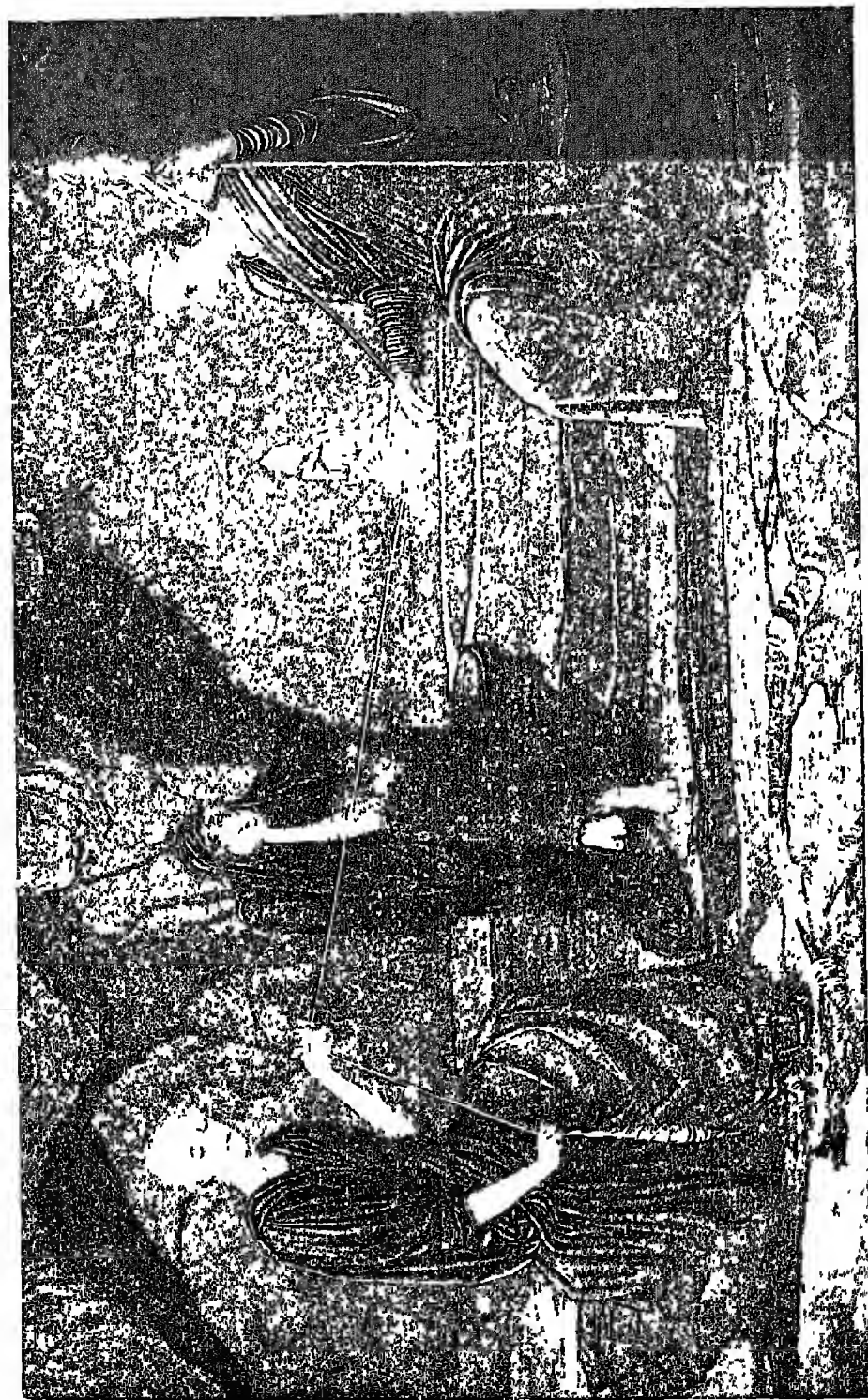
SKETCHES FOR THE BLACKBOARD



FAIRY RING (*If You See A Fairy Ring*)
 CUCKOO CLOCK (*The Cuckoo*)
 NOAH'S ARK LION (*My Toys*)

BEE (*The Fairy And The Bee*)
 FISHERMAN (*Wynken, Blynken, And Nod*)

THE TEACHING OF NEEDLEWORK
IN THE
PRIMARY SCHOOL



[By permission of the Artist]

THE THREE FATES

From the picture "A Golden Thread"
by J. M. Siraudouck in the Tate Gallery]

These maidens of grave men, the three daughters of Night, presided over the destinies of men. Clotho, the youngest, held the distaff which spun the thread of life, Lachesis mixed good and evil fortune with it, Atropos cut the thread at the allotted moment.

GENERAL INTRODUCTION TO THE FOUR YEARS' COURSE

Preliminary training in needlework—The average child, upon becoming a member of the primary department of an elementary school will have very little knowledge of needlework beyond the small amount which has been included in the handwork scheme of the infant school. This has probably taken the form of raffia work of various kinds, or woolwork on canvas, or, in fact, any occupation which involves the use of a needle and thread—thread meaning any medium used in conjunction with a needle, raffia, floss, wool, etc

It is suggested, however, that a very great deal might be accomplished in the infant school towards the definite preparation of the child for the teaching it will receive in the junior school. This preparation, however, should be most informal as far as the child is concerned, although the work of the teacher must take the form of organised thought tending to develop in the child certain qualities

Facilities brought into play by the preliminary work.—First of all the teacher trains the sense of touch, by placing at the pupil's disposal many kinds of materials in small pieces, by which she can learn terms applied to textiles, such as rough, smooth, coarse, fine, thin, thick, dull and shining

Then there is the development of creative power, which is very important. This is gained by letting the child make something—what she likes and in whatever manner she wishes—from these scraps of material. In this way many a child becomes thrilled and absorbed, and finds sewing as attractive at school as at home, where, as everyone knows, she finds the greatest possible delight in being allowed to sit and sew with other members of the family. The teacher must

be prepared to give the child absolute freedom of choice with regard to what is to be made, how it is to be made, the materials chosen, and the time to be spent upon making the article. Through this encouragement the child will also gain a sense of responsibility towards the work in hand, a feeling that whatever is being done must be finished. A good deal can be done, too, towards imparting a love of colour, by the banishment of crude and poor colours, and by the wise guidance of the child's taste in this direction.

The manipulation of materials.—The use of scissors is important, and provided the scissors cut well and are of the right size for the child, the muscles of the hand will be developed in a natural manner, so that later on in school and at home the child will possess confidence in what is always to some people the most difficult task of "cutting out." Articles to be made will readily suggest themselves to the teacher, and anything which involves the handling of material, needles, thread and scissors can be made without any formal instruction regarding stitches, seams or decoration. Continual help in needle threading, and also encouragement to the child will be required, in order that she may move into the junior school with a feeling of pleasure towards her future needlework.

Materials used in the primary school.—All materials used in the primary school should be easily manipulated, soft but firm to the touch, not so easily frayed as to be disagreeable to use, non-wiry, and of extremely good colours. The degree of texture must be carefully graded, from the coarse to the finer, no material of a finer texture than holland or zephyr being recommended for

formal needlework The colours used should also have consideration, no harsh or crude colours should be allowed, and materials of a soft cream hue should be the first used. White material is recommended for use during the fourth year, and then it should be of coarse texture.

Correspondingly, coarse thread should be used in conjunction with the material chosen, and again the choice of colours is important, in order that the child may be trained constantly to cultivate that good taste and artistic sense without which the most exact and fine needlework is wasted.

This care in the selection and in the grading of materials, threads and colours, is very necessary, the eyes and the hands must be gradually accustomed to the close seeing and intricate handling which finer textures demand. The sizes of stitches must bear relation to the degree of coarseness of the texture upon which they are being sewn. By working along these lines the whole scheme will prove to be delightfully practical, and will undoubtedly give great joy to both teacher and class.

Personal cleanliness.—In spite of numerous difficulties in this direction, cleanliness of the hands should be insisted upon, even if a few moments of a lesson seem to be wasted by taking children to wash their hands before allowing them to proceed with their needlework or knitting. The wise teacher may regard this as training in personal hygiene, and in the formation of clean habits of work. This problem is easier to deal with in country areas, where there are fewer children in the school and where washing facilities appear to be easier. The idea of placing in the room a bowl of water and a towel, which are available for use by any and every child is distinctly horrible, but until every school possesses better facilities, this must needs continue.

It would be an ideal arrangement if every room in which handwork or needlework is to take place were to have a fitted sink or bowl and tap, in order that running

water should be available for the use of every individual (including the teacher) at all times.

Cleanliness in work.—Care in looking after and storing needlework should be exercised from the very first lesson, when children should be provided with some sort of covering for the desk or table at which they work; plain paper serves this purpose very well when a covering of material is not provided. Every child should, however, be given a bag known as a lap bag, which serves a double purpose, that of an apron, and also a bag into which the work is placed at the end of the lesson, all children being taught to fold the work carefully and neatly, before putting it away. The bags may easily be made by the children.

Desk covers and lap bags should be washed at least twice during the term, at half term and at the end of term. Storage facilities usually consist of baskets, boxes, or cupboard shelves, the last mentioned being preferable in many ways. Work stored in baskets is often mishandled, and quickly becomes tumbled-looking, whereas it is easily placed on shelves and is easier to keep tidy. When new cupboards are requisitioned for this purpose, those with trays to draw out are recommended as being specially suitable.

Left-handed children.—The needlework of children who are able to sew only with the left hand is often somewhat neglected, simply because the class teacher has not the time to devote to the individual needs of such children, who are unable to follow demonstrations, however clearly given.

As it is unwise to insist upon the use of the right hand, the teacher must be prepared to teach the left-handed child individually by showing her methods of work, or by allowing her to pick up any knowledge she is able to acquire from her companions. A child of this type nearly always feels discouraged, and therefore may be unable to sew when she grows up. A simple device which is found distinctly helpful to both teacher and scholar, is for the teacher to place before

the child a stand measuring about nine inches by seven inches—a calendar, or photograph frame, will be quite convenient, if the face of it is covered with a sheet of paper of neutral colour to form a background. The *back* of the stand should face the child, while on to the front of it is pinned a small section of the work commenced, with the needle in the right-hand position for making a stitch. Opposite this and facing the child, is placed a mirror, which will reflect in it

the left-handed position for work, so that the child will be able to follow the working of the stitch for herself.

This device may be used for the teaching of almost any simple process or stitch, with intricate ones the necessary steps must be worked one at a time. Otherwise the teacher must use her own left hand in teaching left-handed children, and unless she has been trained to sew with both hands, great difficulty will be experienced.

FOUR YEARS' COURSE

FIRST YEAR

Type of pattern.—

Squares and rectangles.

Articles made.—

Mats, doll's house carpets, curtains, doll's bed covers.

Articles for child's own use, bags of all kinds, pincushions, desk covers, etc.

Processes.—

- 1 Fringed edges.
- 2 Fringed ends, and sides neatened by turning hems, held in place by tacking stitch.
- 3 Four sides neatened by turning hems, held in place by tacking.
- 4 Four sides neatened by turning hems, held in place by running.
5. Bag types of articles formed by joining two neatened pieces by oversewing, or by folding one piece and oversewing.

Stitches.—

- 1 Tacking for decoration.
- 2 Tacking for holding hems.
- 3 Running.
- 4 Oversewing.
5. Tacking and running to form simple decorative borders.

Materials.—

- 1 White paper.
- 2 Slav crash.
- 3 Unbleached calico of firm but soft texture.
- 4 Fairly thick casement cloth.
- 5 Thick zephyr.

Threads —1. Anchor floss.

- 2 *Colon à broder*.
- 3 Stranded cotton.

SECOND YEAR

Type of pattern.—

Adaptation of square and rectangular shapes, to make patterns of simple articles and garments having slanting lines and easy curves.

Articles or garments made.—

1 With convex, or outer, curves —Egg cosy, tea cosy, oval cushion, tray cloth, doll's or baby's bonnet.

2. With concave, or inner, curves. —Feeders, pinafores, bags of all kinds.

Experimental work —Doll dressing.

Knitting —Various articles and doll's clothes in plain and purl on two needles.

Processes.—

- 1 Turning narrow ($\frac{1}{4}$ inch) hems round outer curved edges
- 2 Facing with $\frac{1}{4}$ inch tape along inner curved edges.
3. Turning hems round inner curved edges.
4. Sewing on bag handles, made of bands of hemmed strips of material
- 5 Sewing on tape for strings

Stitches.—

- 1 Hemming
- 2 Adaptation of previous stitches to new requirements, decorative stitchery, etc.
- 3 Simple decoration by means of stick printing alone, or outlined with stitches, or by line designs in running or darning

Materials.—

As in previous year Donkey-boy cloth.
Dyed Russian crash

THIRD YEAR**Type of pattern.—**

Patterns made by paper folding
Bought patterns for doll's clothes, and for simple garments.

Articles or garments made.—

Pinafores, Magyar rompers and tunics for baby, one-piece drawers

Experimental work—Making doll's clothes, using bought patterns

Knitting—Using simple cyclostyled or printed directions for vests, scarves, etc.

Processes.—

1. French seams
2. Half-inch hem to form a slot for the insertion of elastic.
- 3 Neatening necks and ends of sleeves and legs by means of facings on the right side, cut to shape on the straight
- 4 Making and sewing on pockets
- 5 *Fastenings*—buttons, loops and cords

Stitches.—

- 1 Loop-stitch for several purposes

- 2 Back-stitch for occasional use

3 Decorative work—simple decoration to the child's own designs, or to adapted transfers; using loop-stitch, back-stitch, cross-stitch, outline-stitch.

Materials.—

Any materials previously used

FOURTH YEAR**Type of pattern.—**

Paper folding and bought patterns

Articles made.—

Knickers, simple dresses for children from a bought pattern

Knitting—Making articles to learn:—
(a) Knitting on four needles (b) Decreasing.
(c) Turning heel (d) Finishing flat toe

Articles such as, egg cosy, doll's or baby's bonnet, purse or bag to draw up

Processes.—

- 1 Run and fell seam.
2. Setting a gathered or pleated skirt on to a yoke or bodice (modern method)
3. Crossway cutting, facing and binding with self or contrasting material Back opening in a child's dress
4. Fastenings—buttons and loops.
- 5 Decoration—simple appliqué using plain and figured material

Stitches.—

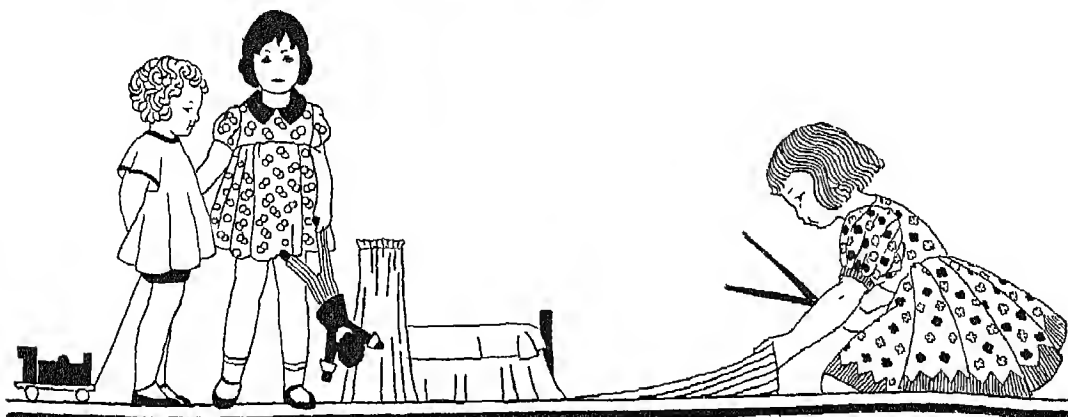
Adaptation of those already learnt to new requirements The use of running, hemming and loop-stitch for applying patches of colour according to design.

Materials.—

Those already used and also Tobralco, printed and check gingham, and zephyr

Needles size 7, and one strand of stranded cotton for finer work, No 40 Sylko

FIRST YEAR'S COURSE OF NEEDLEWORK



The aim of the teacher.—During this most important year in the child's life there are certain fundamental principles of needlework to be learnt. Technique is not yet to be thought of, although if a child is found to possess this naturally, the wise teacher will do all in her power to encourage the acquisition of a still higher technique, for it is often a sign of real talent which may aid the child in the choice of a career later.

A grasp of fundamental principles cannot be naturally acquired, and therefore definite teaching of some, though not a great number, of these will be necessary. By "teaching" is meant some form of showing to a class, group or individual, the processes and stitches necessary for the making of garments and articles.

Class teaching.—By "class teaching" is inferred demonstration, which necessitates the use of specially constructed apparatus large enough to be seen by the whole class at once. This method of teaching simple processes and stitches is strongly recommended for large classes of children of this age. At first the children work step by step with the teacher, and later on, when they are accustomed to demonstrations, the whole

process or stitch may be shown and clearly explained and at once followed by a practice lesson.

Group teaching.—Group teaching is suitable for teaching the more difficult processes and stitches to small classes in rural schools, and for either the more forward, or the more backward pupils. The number of children in a group should be as many as can conveniently see what the teacher is doing when she uses a piece of material of the same size, kind and shape as that upon which each child is working. The teacher must take care to explain as she works, and to leave nothing which needs explanation to the imagination of the children, for they quickly fall into the most slipshod habits of fastening on and off, joining thread, etc., if these points are not stressed at the time of the demonstration.

Individual teaching.—Individual teaching is not a particularly suitable method by which to show new processes or stitches to children, but it has often to be practised in rural or special schools. If this method is often used when dealing with a large class it leads to the formation of lazy habits in

children, and often to a positive hatred for needlework. With a class of forty children for instance, when the needlework lesson is due to last for an hour, at least ten minutes is taken up in getting the work ready, and in putting it away again at the end of the lesson. This leaves only fifty minutes for showing a new process to forty individuals, which means that the time allotted to each child is one minute fifteen seconds, during which time she is to be taught something which will perhaps affect all her future needlework. This means, too, that those children who have no desire to sew, never do sew, for it is easy for such children continually to evade the teacher.

Supervision of work.—Supervision of work is not to be confused with the teaching described above. Supervision consists, not in showing new stages of work to individuals, but in overlooking the work in hand during the practice lesson, correcting wrong methods of holding work or tools, correcting mistakes in measurement and judgment, and above all, in giving that constant encouragement and praise where it is due, which give children the necessary contentment and pride in their achievements. The work may be supervised by the teacher going to each child in turn, or by sitting at her desk, or at a table (this is less artificial) and letting each child come to her in turn—anything in the nature of a queue of children should of course be avoided. By this means the teacher may discover specially gifted children. These quicker workers may be allowed to help the slower and poorer ones with advantage to both types of scholar, the better workers gaining a sense of responsibility and self-reliance, and the poorer workers benefiting by receiving help in a friendly and un-artificial way. This is also an excellent form of social training.

Principles taught in the primary school.—The explanations of the methods employed in the teaching of needlework in the primary school have now been given. The funda-

mental principles which have to be taught during this four years' course of needlework may be seen by reference to the syllabus. They may be considered under three headings —

1. The use of patterns
2. The use of certain processes.
3. The use of certain stitches, each one of which is used in the making of an article or garment

1. The use of patterns.—A pattern of some kind is necessary for nearly every article constructed, and this fact should be emphasized during the lessons which deal with pattern-making. There are various methods of pattern-making, and only the simplest of these should be used in the primary school.

(a) *The flat pattern*—The simplest pattern is the flat pattern taken from any object chosen by the children. Suggestions of articles made from a flat pattern are given in the syllabus of this course, and many more may be found in textbooks. The patterns at first consist of unfolded squares and rectangles so that the whole pattern is placed, exactly as it is drawn, on the material to be cut. It must be borne in mind that the pattern drawn must bear a definite relation in size to the object which it is intended to fit. Children learn from such pattern-making the application of measurements to everyday things. They must be taught to understand such terms as on, up, down, across, length, width and height in their relation to patterns and needlecraft before being able to take measurements. They must also learn the significance of inches, feet and yards in their relation to material, patterns and objects. A child who is about to make a bed cover for her doll's bed must first of all be taught that a pattern is required, and secondly, that the shape and size of such a pattern must depend upon the shape and size of the bed.

This type of flat pattern-making is not always dealt with in schools owing to the following difficulties:

(1) It is impossible for every child to bring and use her own possessions for pattern-making.

(2) Not every child possesses suitable objects from which to make patterns

(3) Even when suitable objects are forthcoming, they are of diverse kinds and often of inconvenient shapes and sizes.

(4) In town and urban districts the classes in primary schools are often too large for the individual work and supervision which is necessary.

One way of dealing with such pattern-making, which has proved very satisfactory, and which gives co-operation with the home life of the scholar, is as follows:—The teacher produces one or two flat mats in good colours and well made, together with the objects for which they were made—for example, a bed cover for a doll's bed would be shown upon the bed, and there is usually no difficulty in getting one child to produce a doll's bed. The teacher then proceeds to show the class that a pattern was necessary before the cover could be cut out. She places a piece of paper upon the bed, folding it under at the edges until the right size is obtained. Similarly patterns may be made for a mat for a vase or plant to stand upon, a doll's house carpet, curtains, tablecloth, and all the other flat articles which may be suggested by the children according to their own needs.

At first the practical part of the work must be done by the children in their own homes, so the teacher gives each scholar a piece of paper longer than she thinks will be required. She asks them to try to make the pattern of the thing chosen, by themselves, during the evening. Plain white or cream drafting paper is the very best kind of paper to use, newspaper should be avoided, the lines of print are very confusing to the eyes and also cause the hands to become dirty very quickly. All this happens before the children have learned to use a ruler or to know what is meant by inches and feet; these aids may be applied to pattern-making later on

with advantage when they have been learned in the arithmetic lesson.

(b) *The folded pattern*—The next stage in the making of patterns consists of the use of folded paper which is cut by the teacher into pieces of the correct size. The folding of the paper produces what are called "divisions," and any shaping of the pattern is drawn to and from the creases caused by the folding. This will be fully explained later in the course. It must be noted that all lines, either folded or drawn, must have some very definite meaning and relation both to the object from which the pattern is taken and to each other. The making of doll's clothes gives excellent practice, the children using their own dolls.

2. The use of processes.—Processes may be defined as the manipulation of all pieces of correctly shaped material, so as to hide or neaten all raw edges, to join the pieces together and to strengthen where necessary. A list of the processes and necessary articles which should be learnt in the junior school will be found on reference to the syllabus given.

3. The use of stitches.—Stitches consist of the correct placing of threads so as to form a means whereby processes may be secured, either temporarily or permanently, also as a means of decoration.

This combination of processes and stitches is generally known as "construction"; it must be emphasized that, whenever possible, any decoration should also be constructive, but not all construction need be decorative by any means. If children are to be taught to make serviceable, artistic and suitable garments and articles for the home, they must be helped to realise early in their school life that plain work can be very beautiful with almost a minimum of labour. Therefore, during the first year, much attention must be paid to the choice of materials, colours, needles, threads and tools. With regard to these articles, a plan which has been successfully followed by a number of

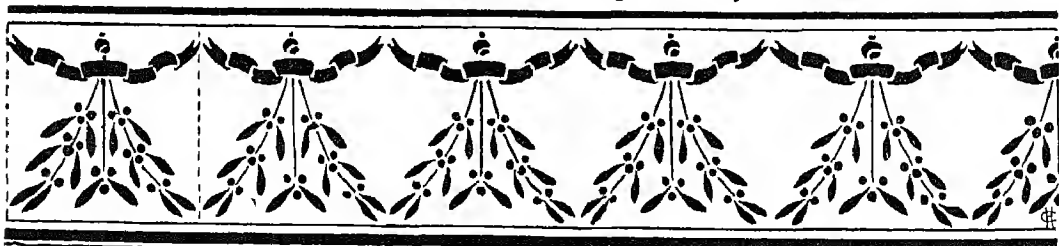
students during "school practice," is to ask every scholar to bring a medium-sized tin box (or to provide tin boxes). The teacher then gives a talk about needles, pins and scissors, and the necessity for everyone to have them if she is going to sew at all. Sometimes the telling of a story such as *The Tailor of Gloucester** will give additional interest. When the children produce their boxes, the teacher gives each child two or three crewel needles, about numbers 5 or 6 at first, stuck into a small piece of woollen material (which need not be new), and about a dozen pins and a marker for measuring widths. If possible, the scholars should bring and keep in their boxes their own thimbles, and later on their own tape measures. A fairly large label with the name of the scholar clearly written upon it should be stuck on the lid of each box, and this, together with a clean linen, or crash, or unbleached calico bag in which to wrap the work, completes the outfit with the exception of scissors. These must be kept in a separate box, and are always a part of the school stock. A pair of scissors which will cut should be available for the use of every child. There is nothing which gives a greater feeling of frustration to a child than to have to wait for scissors until three or four other children have used them, and then to find, when at last they arrive, that they will not cut her material or her cotton.

This system of giving a small outfit of this kind to each child will assist the organisation of work. They take much less time to give out than separate requirements, and the class settles down more quickly in consequence. Also the children benefit

tremendously by acquiring the sense of self-respect which ownership gives. They should be allowed a small quantity of thread at a time, as this saves much walking about the room and makes for a peaceful and settled atmosphere, as well as being a training in responsibility. Odd pieces of material left over from cutting out should be given to every child, for practice purposes. One regular piece bag should also be kept, which will be found useful for all sorts of purposes, as well as thrilling for the children to dip into occasionally.

Organisation.—The time spent on needlework varies according to different types of school, whether rural or urban, and is dependent also upon other factors. The general allowance seems to be two periods of an hour each per week, which gives an average of about twenty-four hours per term, and thus seventy-two hours in the year. This is allowing twelve weeks in the term and making no allowance for occasional holidays. It is for the teacher to decide how many of these lessons shall consist of practical work only. Demonstrations must be of very short duration for at least two terms, as the child's period of endurance is short, so it is fairly safe to conclude that every lesson should contain some practical work. Not every lesson necessarily contains a demonstration, however, for this should be given only when the majority of the scholars require to learn a new process. This depends largely upon the rate of work—probably in the first term three or four demonstrations only might be needed.

* *The Tailor of Gloucester*, by Beatrix Potter, published by F. Warne & Co.



SUGGESTED COURSE OF LESSONS FOR THE FIRST TERM

LESSON 1.

Preparation for work.—The equipment should be given out, while having a short talk about tools. A selection of articles which the children may make during the first year's work may be shown, to arouse their interest and observation.

LESSON 2.

Pattern-making.—The demonstration of this lesson deals with the making of the pattern of a simple article. A piece of paper is placed over or under the object chosen, and the surplus edges are folded under to obtain the correct size. The first pattern attempted should always be square in shape, and a clear explanation should be given to the class showing that it measures the same both ways. For practice, the class may be given a rectangular piece of paper measuring about 6 ins. by 8 ins., and be shown how to make it square by folding it diagonally, the surplus piece is folded over and is then cut away. The teacher then gives out a similar piece of paper to each child,—seeing that the child's name is written upon it before she takes it home—to make a pattern, for example, of a mat for a vase or a plant. The paper should be returned the following morning with the surplus edges folded, but not cut. The teacher then corrects the pieces by straightening the creases ready for the children to cut.

The details of this lesson together with the demonstration are given on page 277.

LESSON 3.

Pattern-making.—Return the corrected pieces of paper, and then show the demonstration pattern, explaining to the children

that in the cases where re-folding was necessary, the folds made by the child were not straight. Emphasis should be laid upon the difference between straight and crooked. The children should then cut their patterns, but as this will take some time it would be wiser to postpone the cutting out until the following lesson. Children who have finished their pattern-making should be encouraged to fetch some thread and pieces from the piece bag and show the teacher any stitches they know.

LESSON 4.

Cutting out.—This is invariably difficult, for the teacher cannot afford to give each child a piece of material very much larger than is actually required, but, on the other hand, if the cutting out is done from the roll or uncut piece of material, two children only can cut out at the same time. It is therefore by far the wiser plan to give out separate pieces of material, as it is better to appear to waste a small quantity of material, than to waste an opportunity of allowing the class to start well and in a thoroughly educational and realistic manner. Therefore, give them pieces of Slav crash—which is a soft, but firm material of an extremely pleasing texture, with clearly defined threads—of a size which will allow a small margin round two sides, when the pattern is placed upon it. Demonstrate placing and pinning the pattern upon the material, and then supervise this carefully. Demonstrate cutting, showing that the whole of one edge is cut along first. Allow children to cut along one edge close to the pattern. Demonstrate cutting the second side, explaining that a corner must *never* be cut round. Supervision should be very careful, particularly where the holding of scissors is concerned.

LESSON 5.

Tacking stitch.—The first stitchery has now to be taught. This consists of tacking stitch. The teacher will require one or two well-made finished articles showing simple applications of this stitch. These will be shown to the children as an introductory measure, to awaken their interest and to set a standard of work which they will endeavour to follow. A demonstration specimen will now be required, for this, a piece of hessian of a soft cream colour, or any cream-coloured firm material, may be used. The piece should be cut sufficiently large for the whole class to see; twenty-four inches square to twenty-seven inches square is a good size for easy handling. The title of the lesson should be clearly written at the top of the blackboard, and the demonstration piece fixed with pins immediately beneath it. Alternatively, a special non-rigid bar may be used, which is quickly and easily attached to or detached from the blackboard, and from which the working specimen hangs so as to be more efficiently manipulated by the teacher. Such a bar may be purchased very cheaply. Rigid frames are not recommended, neither are ready-made demonstration specimens of the type containing neatened holes for the insertion of the needle. Both are non-educational and artificial in use. With the specimen hanging from the board, the teacher grasps the lower edge in her left hand, thus showing the correct position of hand and material for holding the work. She uses with her right hand a large demonstration needle threaded with lightly twisted rug wool, or other thick wool or knitting cotton, and every individual will be able to see exactly what takes place.

The details of this lesson and demonstration are given on page 280.

LESSON 6

Practice in tacking.—This lesson will be taken up with practical work, the children continuing with their tacking started in the

last lesson. Constant supervision and help will be necessary

LESSON 7.

Knitting.—Some of the class may now begin knitting, which is unsuitable as a subject for class demonstration. Its processes are intricate and are best described in detail to groups or individuals. A few children may have finished the tacking stitches round their mats, and having ascertained that those who are sewing need no further help for the moment, the teacher should provide the knitters, some of whom will probably have knitted at home, with either knitting cotton, or preferably a hard, three-ply wool of good colour, and with fairly coarse steel needles. She herself will require four-ply wool, or rug wool, and wooden needles about half an inch in diameter, and will proceed to show the children the process of casting on. Thus they may practise for a little while, and those who already know the art may, with advantage, be allowed to help those who do not. Knitting taught in this way, gradually



DOLL DRESSED IN KNITTED OUTFIT

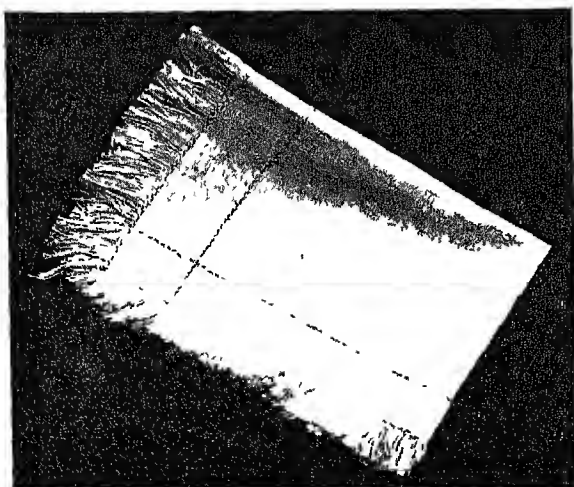
and naturally, is less laborious to both teacher and class, and will be found to take its right place as what is known as "pick-up" work, an exercise which is always at hand to be continued whenever the child requires help in her sewing which the teacher is too busy to give for a while. Thus children learn to value every moment, and at the same time the muscles of the hand are being constantly trained. Garter stitch is the stitch taught, and many useful and practical articles may be made, as well as doll's clothes.

LESSON 8.

Practical work.—The teacher continues with her instruction on knitting to groups of children, and supervises the work of knitting and sewing.

LESSON 9.

Fringing—The teacher explains the method of drawing out threads at the edges of mats to form a fringe, which both decorates and neatens a raw edge. Threads along opposite sides are drawn out to the depth of $\frac{1}{2}$ inch to 1 inch, and then again on the other opposite sides. Practical work should then be given.



FRINGED TABLECLOTH DECORATED WITH TACKING STITCH

LESSON 10.

Continuation of the lesson on fringing.

LESSON 11.

Pressing.—As some of the work will now be finished, the teacher with the necessary facilities may show how to press the work. Pressing is taught in order that the finished appearance of the articles may be as perfect as possible, and that the pressing of a piece of work after it is finished may be realised as a necessity.

LESSON 12.

Experimental work.—By this time, possibly every child will have finished her work. Some children may have made two or three articles, upon which they wish to make stitches they have learned at home. When this is the case they may be encouraged to do so, particularly during these last few lessons. This lesson may be devoted entirely to experimental work, letting the children make whatever they wish, using any odd scraps from the piece bag. By this means the teacher discovers children who show some degree of originality, either artistically or purely practically, those who are particularly accurate, and those who will require special attention during the next half term.

LESSON 13.

Making a pattern of a doll's bed cover.—This half term may be devoted to learning the method of making a doll's bed cover, or similar article with fringed ends and sides turned in to form hems of a half-inch in width, held in place by tacking. This lesson, therefore, will consist of showing the class how the pattern is made, using a doll's bed as previously suggested. The children make their own patterns, leaving extra material along the sides for hems.

LESSON 14.

Cutting out the bed cover.—Give unbleached calico or Russian linen and let the children attempt to place their own patterns entirely by themselves. Before the class begins to work, a few judicious questions may be asked about the placing in order to refresh the children's memories. Then let them cut out their bed covers.

LESSON 15.

Turning down hems.—This lesson is described in detail on page 282

LESSON 16.

Knitting.—Demonstrate to groups the casting off in knitting, while the rest of the class proceeds with practical work

LESSON 17.

Practical work.—Both sewing and knitting

LESSON 18.

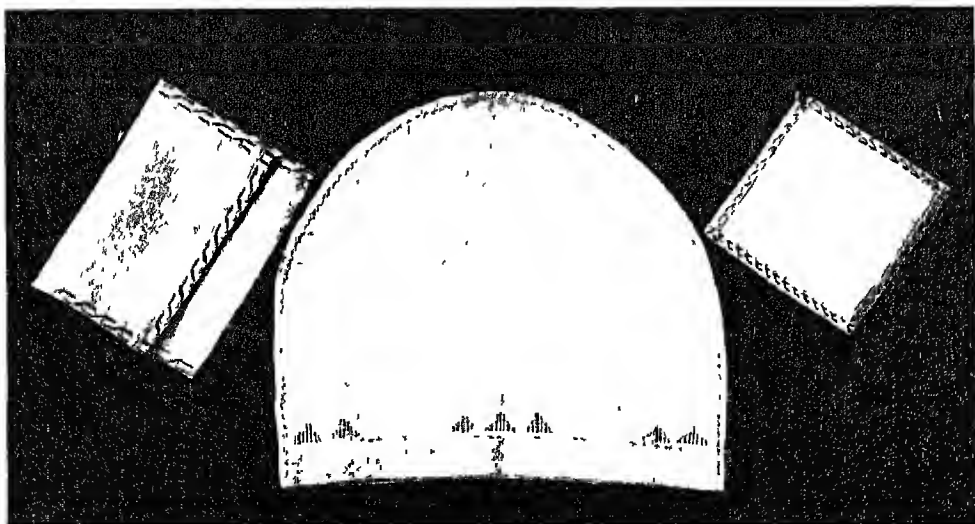
Practical work—Both sewing and knitting

LESSON 19.

Practical work.—By this time some children may have finished the tacking stitch on the hems, and their work may be pressed. Further decoration may be suggested by the child herself—her initials in tacking or running, or other forms of decoration, which she should be encouraged to use in order to develop originality in her own way.

LESSON 20.

Experimental bag making.—While some children are finishing their sewing, others will require attention to their knitting. As each child finishes her work, give her a fresh piece of material and ask her to make a bag of some kind for any purpose. The size of the material depends upon the resources at the teacher's command. This plan is largely experimental. While it aims at giving the forward or talented workers full play and scope for originality and self-development, as well as great encouragement, it also encourages the slower workers who feel that they are not being harassed and over-urged beyond their powers



CASE, TEA COSY AND TABLE MAT DECORATED WITH RUNNING AND TACKING STITCH

LESSON 21.

Practical work.—Those children who have finished their articles may proceed with experimental work.

LESSON 22.

Practical and experimental work.

LESSON 23.

Finishing work.—All the children should

now be finishing off their needlework and knitting.

LESSON 24.

Pressing.—The work must now be pressed ready to be taken home

This completes the term's work, and will be found to be a very satisfactory arrangement, although the number of lessons devoted entirely to practical work may need to be greater or fewer, according to the manner in which the children work, or according to the duration of the lessons

THREE LESSONS IN DETAIL FOR THE FIRST TERM

THREE lessons, the organisation and arrangement of which are set out in detail, are now given in the order in which they will be required. The illustrations are of the actual material used for demonstration purposes, whether of paper or stuff. Blackboard drawings and previously prepared diagrams are not required for young children's work

MAKING THE PATTERN OF A DOLL'S TABLECLOTH

(Details and Demonstration of Lesson 2.)

PREPARATION

Previous knowledge—Paper tearing and cutting.

Aim—The aim of this lesson is to teach the following points—the necessity for a pattern to be cut to the shape of the object for which it is required, to be of a suitable size and to be related in size to the object, the meaning of length and width; a simple

method of making a pattern square in shape, training in observation and memory.

Teacher's requirements—A small square table of convenient size. A doll's house table with a finished cloth made of Slav crash, with frayed edges, and decorated across each side about two inches from the edges with two rows of even tacking stitches, each stitch being about $\frac{1}{2}$ inch in length. A finished paper pattern of the doll's tablecloth. A piece of plain cream or white paper, rectangular in shape, about 8 ins wider and 12 ins longer than the table to be used for the demonstration. A blackboard, bright red and white chalk, and three drawing or push pins.

Children's requirements—Each child will require a rectangular piece of paper, 10 ins by 8 ins., with which to make a pattern to fit the doll's house table, which measures 6 ins by 6 ins, the finished cloth to measure 8 ins by 8 ins. Each child will also be given a piece of paper measuring approximately 12 ins. by 16 ins from which to make a pattern to fit some object for which they wish to make a square cover or mat.

INTRODUCTION

Begin the lesson by showing the children the doll's table without the cloth, and ask them what they have seen laid upon tables. Place the little cloth upon the table, making certain that every child sees it. Explain the meaning of a pattern, and question the class in order to discover whether the children have watched mothers or sisters making garments, and whether paper patterns were used. If any have an idea of this, ask them to explain to everyone why patterns are required. One or two of the more observant children are certain to know this, but their explanations will require elaboration by the teacher to the class. Explain that paper patterns are made to fit objects which may be many sorts of shapes; and that it is an easier matter to make a pattern in paper and then to place it on stuff and cut round it, than to cut out the shape straight away in stuff. Paper is stiffer than stuff, and stays where it is placed upon the object, while it is folded into a pattern of the required shape. Show the class the small pattern placed over the doll's table, and then on the cloth. Finally, show the cloth upon the table, thus establishing relation between pattern, cloth and table, and then tell the class that they are now to be shown how to make the pattern of a tablecloth.

PRESENTATION

Bring forward the table to be used for demonstration purposes, explaining that the larger table is used so that everyone can see what is being done. Show the large piece of paper to be used for a pattern, and ask the children what difference in shape they can see between the table-top and the paper,—the table is square, the paper oblong. Place the paper over the table so that the amount which hangs over the edge is the same on three sides. Question the class again in order that they may observe the different appearance of the longer side. Then tell them that because this appearance

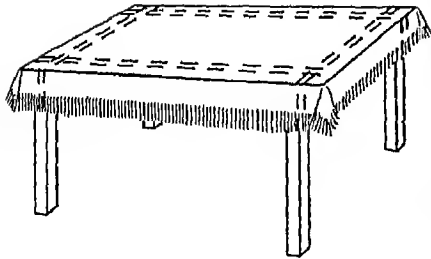
is ugly, as everyone can see, the pattern must be made shorter on that side.

Let the children examine their own papers, and then instruct each child to place her piece of paper on the desk in front of her with the longer side running from the pencil rail (or inkwell, or any other convenient point) to her body. Pin the demonstration piece upon the blackboard in a similar position (having first written up the title of the lesson). Draw attention to the position of the demonstration piece, then supervise the children's placing of their papers. It is important to give definite and clear instructions regarding the placing of papers for patterns upon the desks, and to see that the teacher's demonstration piece is placed in exactly the same position. Supervision of this should be carefully, though quickly, carried out.

Ask the children to hold up their left hands. Then tell them to take up with the other hand the corner of the paper nearest to it, and to fold the paper so that the edge nearest the body touches the edge nearest to the left hand. Show on the board how this is done, crease firmly, and ask the class to do the same. Supervision is necessary here, and will take a little time. Show on the board that if the piece which is jutting out beyond the double part is folded over, and the first crease unfolded and flattened, the result is a square piece of paper.

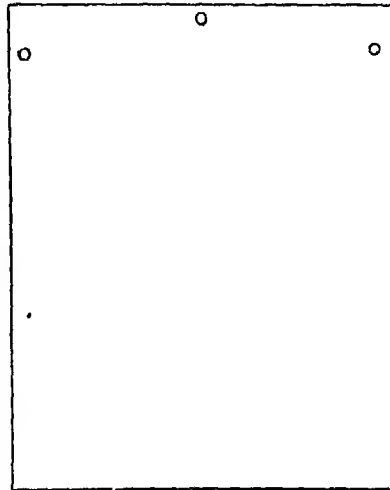
An alternative to so much explanation is to number the sides 1, 2, 3, 4, or A, B, C, D,—this appears to be less confusing for the teacher, but actually the class is prevented from some independent thought by this method.

Place what has now become the square pattern on to the demonstration table, and the small pattern on the doll's table in order to show that the larger pattern now fits the table. Pin the demonstration piece on the board and instruct the class how to fold over the surplus piece at the top to make the square. Supervise the work of the children and help any who find it difficult.



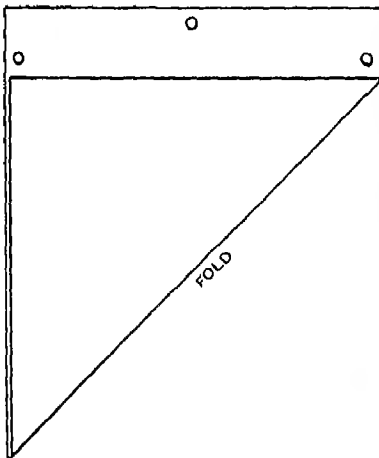
CLOTH ON TABLE

MAKING PATTERN OF SQUARE TABLECLOTH



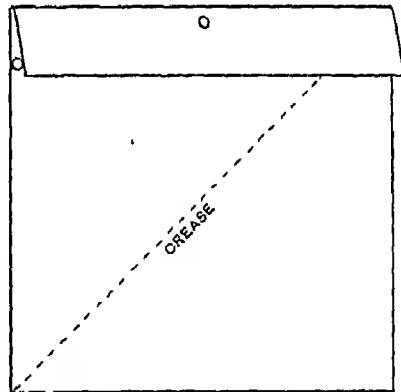
DEMONSTRATION PAPER 28" X 24"

MAKING PATTERN OF SQUARE TABLECLOTH



FOLDING PAPER TO MAKE A SQUARE

MAKING PATTERN OF SQUARE TABLECLOTH



SURPLUS PIECE FOLDED DOWN

MAKING THE PATTERN OF A DOLL'S TABLECLOTH

APPLICATION

When every child has the pattern correctly placed and folded, ask the class to name any square flat objects of their own, from which they would like to make a pattern. Let them name several objects, and write the names upon the board as suggestions for the class. Give out the pieces of paper which are to be taken home, taking care that each piece has the child's name written clearly upon it. Tell them that everyone is going to make an article to fit one of the objects named upon the board, or to fit some objects in use in their own homes. They are each to take a paper home and try to make a pattern of whatever they like, and bring their papers back the following morning.

Some of the attempts will be very rough indeed, and these must be straightened up by the teacher. Then, if it is expedient to do so, she will calculate the amount of material required by each child, and cut for each a piece of material slightly larger than her pattern.

Blackboard Notes.—Suggestions for articles for which square patterns may be made —

Table centre or mat
Handkerchief
Dressing-table covers and mats.
Tablecloth for doll's house.
Doll's house blinds

TACKING STITCH

(Details and Demonstration of Lesson 5.)

PREPARATION

Previous knowledge.—Large stitchery in wool, raffia, etc.

Aim.—The aim of this lesson is to teach the following points,—the correct position of holding the needle and thread and the material when making stitches, how to make simple measurements, training in accuracy and observation

Teacher's requirements.—The doll's tablecloth on the doll's table. The demonstration table, and a demonstration specimen of cream or soft-hued hessian or similar material, previously described, with unneaten edges, about 24 ins square. A marker for measuring distances from the raw edges to the tacking stitches, this marker should be about 7 ins by 3 ins in size, one end being coloured blue for a distance of 3 ins. A demonstration needle. Syrian rug wool, red or orange. A blackboard, and drawing or push pins, with a suspension bar if desired. Ordinary pins.

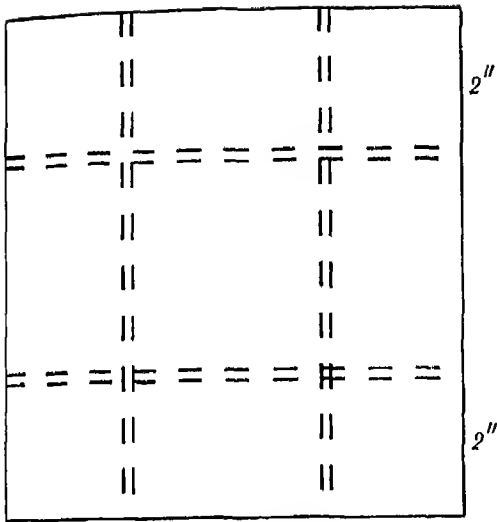
Children's requirements.—Their articles already cut out, crewel needles (size 5), *colon à broder* or Star Sylko, fine wool, etc. Markers, 4 ins long and 1 in wide, with one end coloured blue for a distance of 2 ins, pins and thimbles.

INTRODUCTION

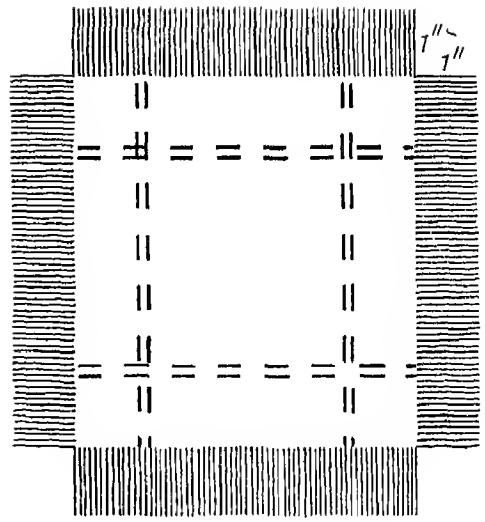
This should be very brief, as the children will be anxious to start sewing. Ask a few questions to draw the children's attention to the stitches. Show the finished cloth and tell the class that the purpose of the stitches is to make the cloth look less plain and to decorate it at the edges.

PRESENTATION

Write the title of the lesson on the blackboard. Pin up the demonstration piece with three pins, one in the centre of the top edge so as to be easily removable, and one at each side of the piece halfway down. Show the demonstration marker, and draw the attention of the children towards their own markers, pointing out the coloured portion at the top of each. Explain that the teacher's marker and the cloth on the board are both larger than those of the children, in order that they may see clearly. Tell them that they are going to make a straight line of stitches, using the marker for measuring.

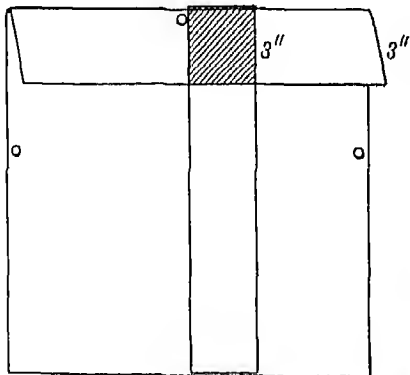


Tacking stitch border



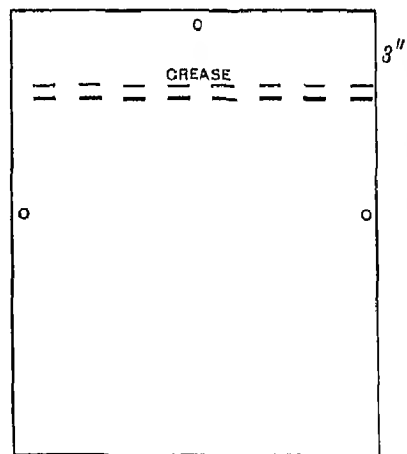
Doll's Table-cloth

CREASING AS A GUIDE TO TACKING STITCH



MARKER IN POSITION

CREASING AS A GUIDE TO TACKING STITCH



TWO ROWS OF TACKING ALONG CREASE

TACKING STITCH

Place the marker vertically with the blue end uppermost touching the top raw edge of the cloth on the right-hand side. Supervise to ensure that every child's marker is placed in the correct position. Then move the marker along towards the left hand and put a pin exactly in line with the edge of the blue portion. Supervise this step in the children's work. Continue to move the marker along to the left, putting in one or two pins, until the left-hand edge is reached. Supervise the children's efforts, giving help where necessary.

Tell the children to take away the marker and crease the cloth firmly right along the line marked by the pins. Show this step on the board, removing the top pin and replacing it in the double thickness as the crease is made. Supervise the children's work, and wait until everyone has finished before demonstrating the next step.

Every child must now thread her needle. The specimen must be removed from the blackboard—and the method of holding the work should be shown as follows.—hold the cloth in the left hand, over the two first fingers, with the larger piece of cloth falling into the hand. See that the children are also holding their work correctly. Put the needle into the crease and pull it through, leaving a short end of thread only. Show this on the demonstration piece and then supervise the children's efforts. Work the needle along a little way on the under side and bring it out to the top side, thus making a stitch on the under side. Continue to make stitches in this way, so that the stitches and spaces are equal in length as far as possible. Constant supervision and help will be necessary.

After one row of tacking has been worked another is made immediately beneath it. Then the opposite side is worked and the third and fourth sides.

APPLICATION

As the class has had very little, if any, previous experience of stitching, the question

of application may be left till a later lesson, probably until after the mats are finished.

TURNING IN A RAW EDGE TO FORM A HEM TO BE HELD IN PLACE BY TACKING STITCHES

(Details and Demonstration of Lesson 15.)

PREPARATION

Previous knowledge.—Tacking stitch used as a simple border, and fringing edges

Aim.—The aim of this lesson is to teach the following points:—a method of neatening a raw edge by means of a hem, and a decorative stitch to hold it in place, training in measurement, accuracy and observation, and dexterity in handling

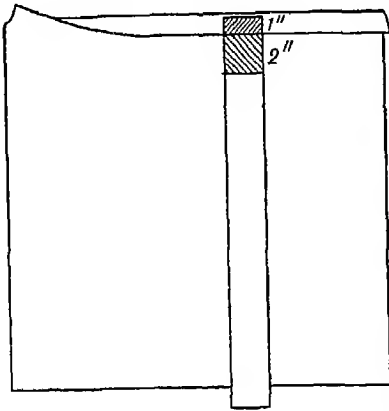
Teacher's requirements.—A finished bed cover on a doll's bed. A demonstration piece, rectangular in shape, about 27 ins. by 24 ins. in size. Demonstration needle and wool. Marker, 7 ins. by 3 ins. as before, but marked in two colours, red and blue, to represent widths of $\frac{1}{4}$ inch and $\frac{1}{2}$ inch.

Children's requirements.—The articles they are making, *coton à broder*, crewel needles (size 6), pins, thumbies, and markers coloured similarly to the teacher's marker.

INTRODUCTION

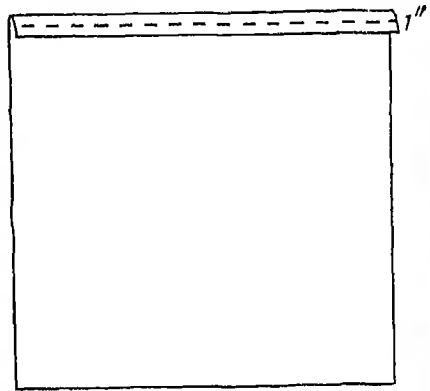
Question the children in order to remind them of what has previously been done, show the finished cover and other articles and ask them to point out any differences between what is being shown and what they have all made. They will notice that in the finished cover the sides are not frayed but are turned in. Explain how this makes the edges stronger and neater, so that the articles will last longer than if they were frayed all round. Therefore the children will now learn how to do this.

TURNING A HALF-INCH HEM



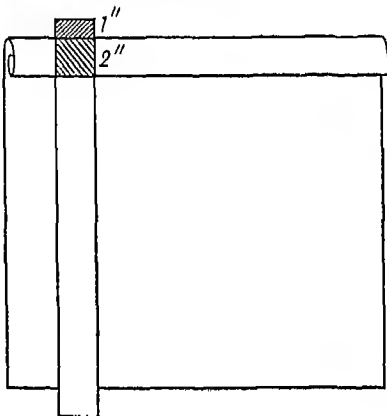
CREASING FIRST TURNING WITH MARKER

TURNING A HALF-INCH HEM

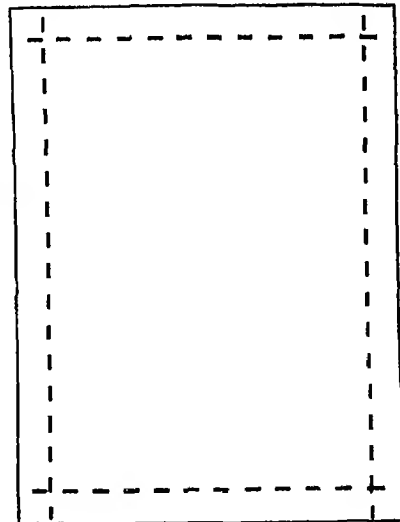


FIRST TURNING TACKED DOWN

TURNING A HALF-INCH HEM



CREASING SECOND TURNING



FINISHED BEDCOVER

TURNING IN A RAW EDGE TO FORM A HEM TO BE HELD IN PLACE BY TACKING STITCHES

PRESENTATION

Write the title of the lesson on the board. Pin up the specimen piece, placing it so that the length is across the board. Ask the children to place theirs in a similar position on their desks, and supervise this carefully. Place the marker vertically against the top right-hand corner of the demonstration piece and turn down the raw edge at the width of the red part of the marker. Pin this corner down, and continue to do this all the way along, placing the pins in an upright position and working from the right hand towards the left hand. Supervise the work of the class. Demonstrate the turning over of the second side, so as to hide the raw

edge, in exactly the same way. Draw out the pins from the first stage, and replace them through all the hem thicknesses. Crease the fold firmly. Supervise this before the class commences tacking. Revise tacking, by inviting a child to come forward and show the class where it has to be worked. After this show on the demonstration piece a few properly proportioned stitches.

APPLICATION

Question the class to discover whether they have any further suggestions for using either hems or tacking stitches, and if there are any other places where either could be used on the articles which they are making.

SUGGESTED COURSE OF LESSONS FOR THE SECOND TERM

SCOPE OF THE TERM'S WORK

THIS term should be mainly devoted to revision, and to further practice in pattern-making by the children's own efforts and according to their own ideas. The children continue, however, to learn further processes and stitches, using somewhat finer material and thread. They should learn to use tacking cotton for tacking, which will take its proper place in sewing, whenever it is not used for decorative purposes. Knitting may be continued as in the first term.

The article made during this term may be a bag or a case, made from a square mat with its sides neatened by $\frac{1}{2}$ inch hems held in place with running. It is folded in half, or into three and joined by running together along the edges. Decoration is supplied by running stitch as the child desires.

LESSON 1.

Making patterns.—No demonstration is required for this lesson, but finished articles should be shown.

LESSON 2.

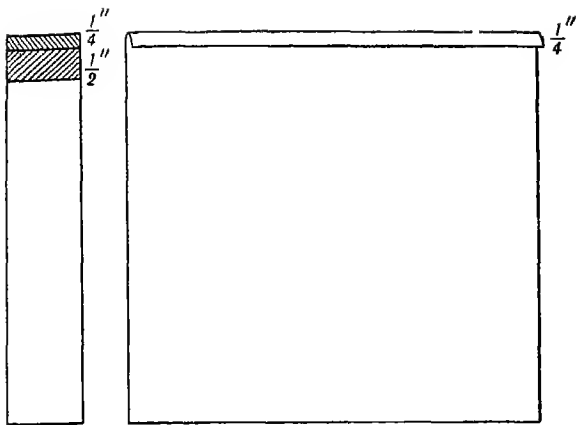
Cutting out.—This is revision work, and supervision should be given, especially where pinning is concerned.

LESSON 3.

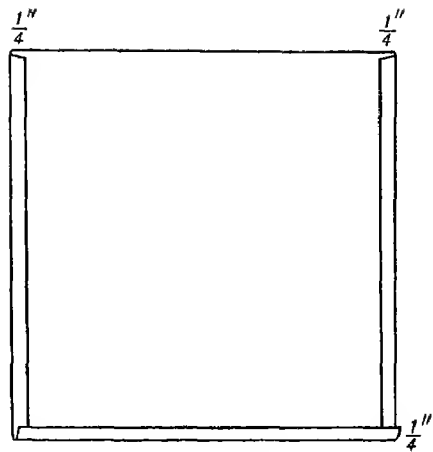
Cutting out.—The process of cutting out is continued, and knitting may be commenced with the more forward children.

LESSON 4.

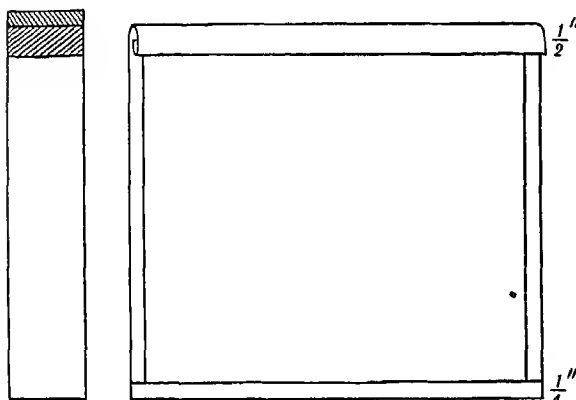
Cutting out.—During this lesson even the slowest workers should complete their cutting out.



First turning $\frac{1}{4}$ "



Order of turning sides



Second turning $\frac{1}{2}$ "

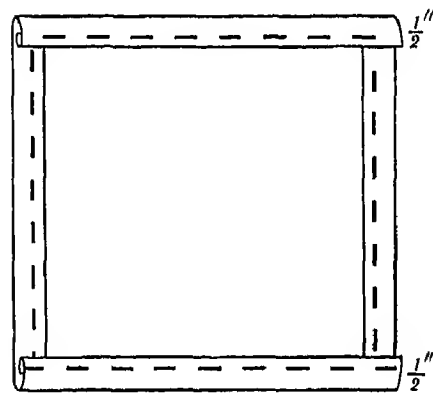
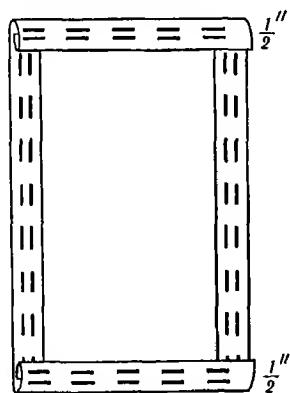
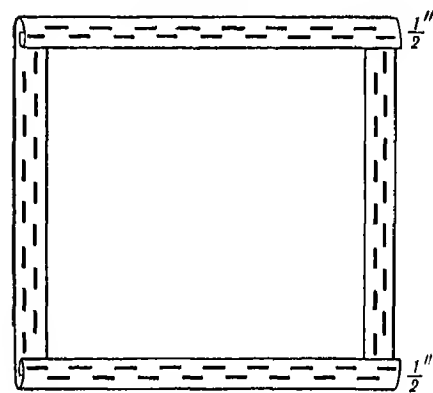


Table-cloth



Tray cloth



Bed cover

TURNING IN A RAW EDGE TO FORM A HEM TO BE HELD IN PLACE BY TACKING STITCHES

LESSON 5.

Turning down hems.—This is a revision of the work done in the first term. Markers are used as before for measuring, but tacking cotton is used for tacking the hems, which are turned down in pairs of sides. Special attention must be given to the arrangement of corners.

LESSON 6.

Turning down hems.—This is a continuation of the previous lesson. When two sides have been tacked, running stitch may be taught.

LESSON 7.

Running stitch.—For the demonstration prepare as for tacking stitch, using rug wool, or four-ply red or black wool for showing the running stitch, and finer wool in a contrasting colour for tacking. Special attention must now be drawn to ways of fastening on and off at the ends of each side, also to

the fact that the stitches must show equally and clearly on the front and the back of the hem, and that their position should be just above the inner fold of the hem. For this reason, the finished articles should always be in evidence, so that the class may be able to look at them from time to time.

LESSON 8.

Practical work.

LESSON 9.

Practical work.

LESSON 10.

Folding bag.—Some children will now be waiting to be shown how to fold their mats, to make them into handkerchief cases or other bags. Let them observe the finished articles, and then fold the paper pattern



HANDKERCHIEF CASE DECORATED WITH RUNNING STITCH

similarly for themselves. If their folding is correct the children may fold their mats, making the fold, which composes the case, equal in length to the marker or to the uncoloured section of it, according to the width required. The double part of the bag should be pinned securely and then joined by running the two edge folds together.

LESSON 11.

Practical work.—A few individuals may complete their cases, and may be allowed

to make a cord from strands of *coton à broder* twisted together, which may be sewn to the centre of the flap, and will tie round it to secure its contents,—handkerchiefs, pencils, combs, etc.

LESSON 12.

Pressing.—In this lesson the work should be pressed and finished off. When pressing is done, the garments should not be damped if they are to be put away for a period, as they will develop mould.

SUGGESTED COURSE OF LESSONS FOR THE THIRD TERM

SCOPE OF THE TERM'S WORK

AT this stage in the year most children should have gained a certain facility in making a simple flat pattern, (the quicker, keener and more intelligent workers will have completed twice the number of articles suggested), in manipulating material and tools and in the working of flat stitches.

Oversewing (not to be confused with overcasting, which is used only for neatening inside raw edges of garments and need not be used in the junior school) is a stitch which is used very little at present, except for occasional short joinings of selvedge edges, and in sewing on tapes and other quite small pieces of neatening. Nevertheless, it is a very suitable and artistic stitch to use for the decorative joining of previously neatened edges of articles made of fairly coarse materials. Also the practice of this somewhat difficult stitch gives distinct advance in manipulation. The working of oversewing demands a new way of holding the work and of inserting the needle, of fastening on and

off, and joining the thread, and it has an entirely different appearance from the flat stitches hitherto made.

There is need now to emphasize the difference between the two sides of a material; although the contrast between the right and wrong sides is never very evident to a child, (unless there is a distinct difference in colour or texture), particularly when materials such as casement cloth are in use. Differentiation, therefore, can be made by using the terms inside and outside for such articles as bags, and this point must be made clear in connection with the turning of hems. A good general rule to follow is that hems may be turned on to the right, or outer side of the work, only when they are to be held in place by decorative stitchery. This seems to be less misleading, on the whole, than to allow children to turn all hems on to the right side while in the junior school, only to be confronted with a complete reversal of this idea both in their homes and in the senior school. As everyone knows, garments in general wear do not as a rule have hems turned on to the outside or right side.

The child begins to realise some of the boundless possibilities which now lie before her; the realm of discovery widens, creative power becomes further developed, a dawning sense of beauty is present, and there is a need for new knowledge of stitches, and further applications of those which were first learned for decorative purposes.

The pattern-making will consist of the construction of patterns of the bag, case, or cover type, always to fit some specific object. As the work grows in difficulty, so does the scope for the making of articles become wider. The class may now be divided into groups, about six different articles being suggested to the class as possibilities for the term's work. These articles may include the following: pin cushions, doll's cushions, work bags, shoe bags, lunch bags, nightdress cases, music covers, book covers. Experiments have shown that children are eager at this stage to make a rather larger article and something for their own everyday use.

When the teacher shows a selection of bags and cases, the objects for which they are made should be placed within. This conveys the sense of purposefulness in making them more quickly than giving the clearest explanation of their use.

Before the first lesson, it would be wise to discuss with the children the type of articles to be made during the term, in order to awaken the children's interest. They may be asked to see if they have any object at home which requires to be kept in a case or a bag, and if so, to bring the object to school, so that a pattern may first be made.

LESSON 1.

Preparations for work.—The class should produce objects for which cases are to be made. The children must be arranged in groups, and patterns must be made. Revision of pattern-making is necessary, the teacher explaining and demonstrating that the object to be enclosed in a bag must be entirely covered.

LESSON 2

Pattern-making.—When a case or bag is chosen for making, a pattern in one piece only is necessary, this should be folded before being corrected by the teacher. Correction of this kind may either take place at the child's desk, or the children may be permitted to bring both object and pattern to the teacher's table, the rest of the class being occupied with the continuation of the knitting of various articles in garter stitch.

To inspect work at her own table gives the teacher more space.

LESSON 3.

Distribution of material.—The teacher gives out pieces of gaily-coloured casement cloth or gingham, which she has already cut into the approximate sizes required. The children may begin cutting out.

LESSON 4.

Cutting out.—This is a continuation of the previous lesson,—cutting out bags, and knitting.

LESSON 5.

Turning down side hems.—The children now turn down $\frac{1}{2}$ inch hems along the sides of their bags on the inside (or wrong side) holding the hems in place by means of running. They should use ordinary tacking cotton for tacking the hems. The length of the stitches should not exceed $\frac{1}{2}$ inch, with the same distance between them, a marker should be used for measuring the stitches.

LESSON 6.

Practical work.

LESSON 7.

Turning down end hems.—The children now turn a hem at each end of their pieces of material. This hem is 1 inch wide for bags,

le for cases These hems are
place, as they may be turned
tside (or right side) of the
held in place by decorative
king stitches in *coton à broder*
otton

LESSON 8.

etch borders.—The details of
h the demonstration are given

LESSON 9.

ork.

LESSON 10.

Oversewing.—Oversewing is used for join-
ing the sides of the bags. The details and
demonstration of this lesson are given on
page 292.

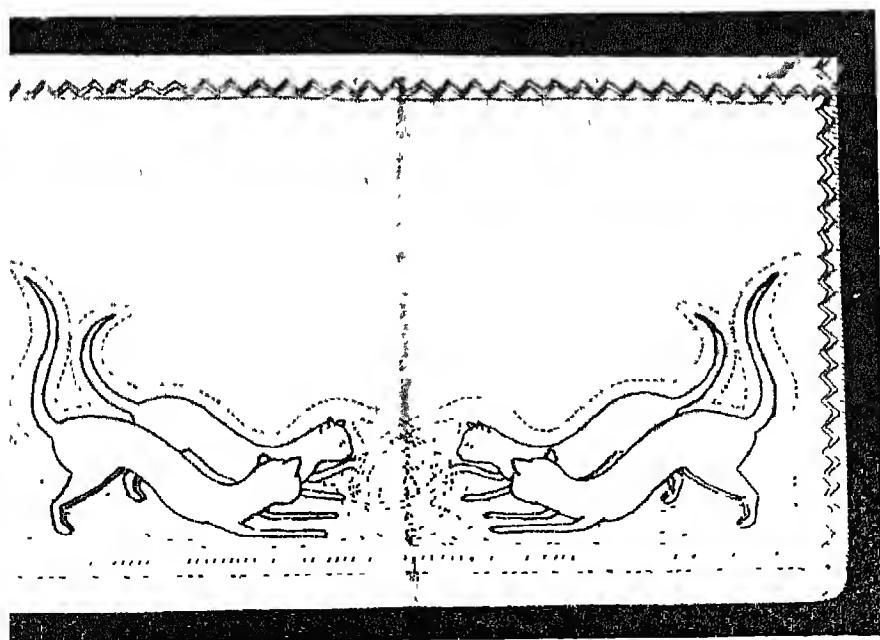
LESSON 11.

Practical work.—The children join the
sides of their bags with oversewing

LESSON 12.

Finishing.—The bags are finished and
pressed, and the knitting is finished At any
time during the term, cords may be made
to pass through the tops of the bags

This completes one year's needlework and
knitting



JOINED BY OVERSEWING AND DECORATED BY RUNNING, TACKING AND STEM STITCH

TWO LESSONS IN DETAIL FOR THE THIRD TERM

THESE two lessons, like the detailed lessons given at the end of the First Term's work, are now given in the order in which they will be required.

SIMPLE BORDERS TO BE WORKED IN TACKING STITCH

(Details and Demonstration of Lesson 8.)

PREPARATION

Previous knowledge.—Single lines of tacking stitch used for holding a narrow hem in place.

Aim.—The aim of this lesson is to teach the following points:—a method of adapting an ordinary, or constructive stitch, to fulfil a purpose which is both constructive and decorative, how to fill a prescribed space with a pattern composed of straight lines; to train powers of adaptability and to foster originality in children.

Teacher's requirements.—Finished articles similar to those being made by the class, the wide hems being held in place by simple tacking stitch borders. A large piece of fairly coarse material,—house flannel, or cream hessian,—24 ins. long and 18 ins. wide. The eighteen-inch-wide material is suggested because it can be bought in this width and will therefore have a selvedge along two edges, which is convenient for a teaching specimen. A demonstration needle and suitable wool in two colours. A demonstration specimen made of similar material, showing three or four borders worked in wool upon it. Blackboard and chalk, and a bar from which to suspend the demonstration

specimens, which should have two rings sewn on as in the accompanying illustration, so that they may be hung on the bar.

Children's requirements.—The bags which they are making, with hems 1 inch wide tacked in position with ordinary tacking cotton. Markers coloured with $\frac{1}{4}$ inch and $\frac{1}{2}$ inch bands. Needles, and threads in two colours.

INTRODUCTION

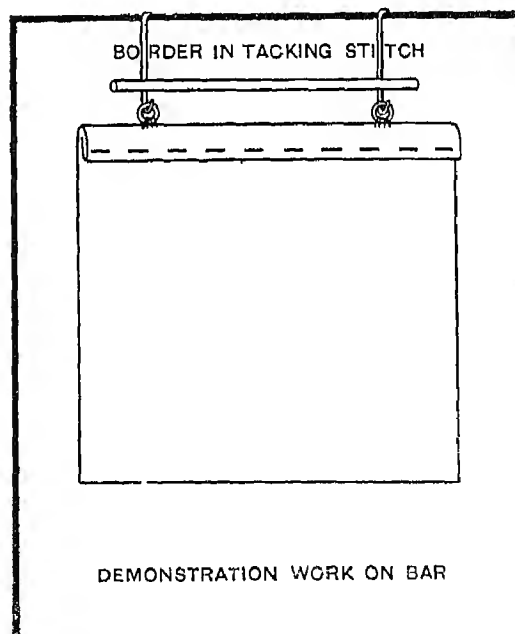
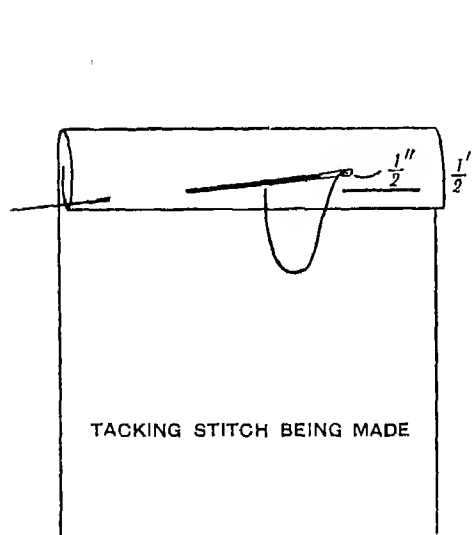
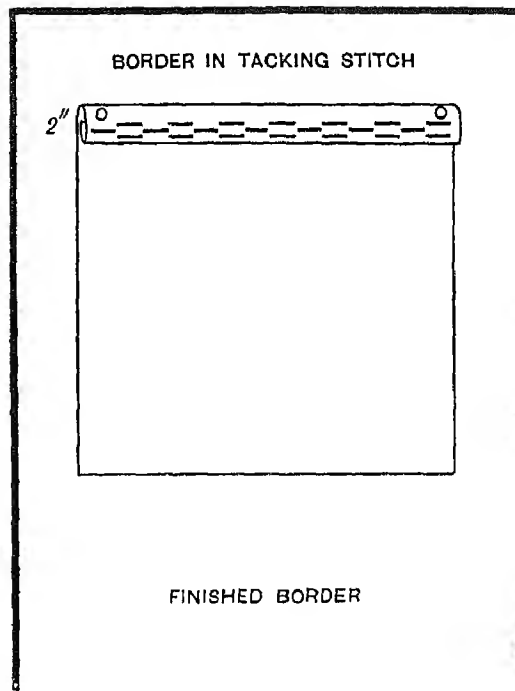
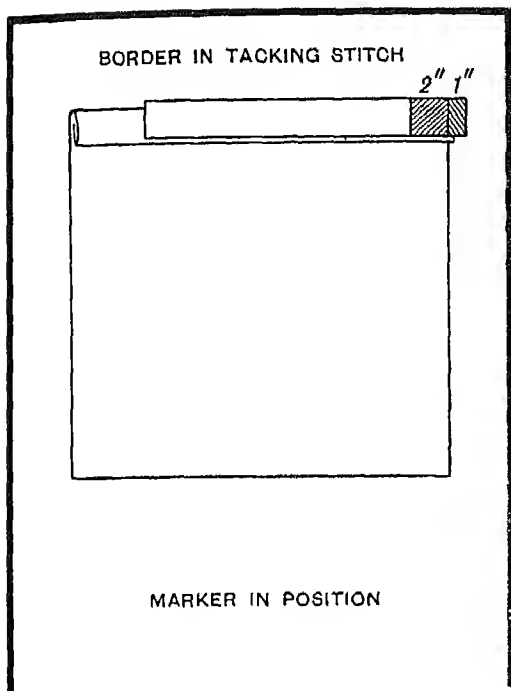
Show the children the finished articles, pointing out the borders of tacking stitch, and tell them that this shows another way of keeping a hem in position, especially a wide hem, which looks plain with only one line of stitching. The border is made of two or more rows of tacking, which has to be worked very evenly, and the rows must be exactly the right width apart to suit the width of the hem.

PRESENTATION

Hang up both the large specimen pieces close to each other, and tell the children that they will be shown how to work two borders only, then they can make up others for themselves. Refer to the large specimen sheet of finished borders, and choose the specimen of alternate tacking. There are three rows, the length of both the spaces and the stitches being equal to $\frac{1}{2}$ inch. The width of the border equals $\frac{1}{2}$ inch, thus filling half the width of the hem.

Demonstrate as follows —

First row — Tack the whole way along the hem edge, to hold it down, making the stitches as long as the blue part of the marker. Measure by holding the marker and the work together in the left hand so



SIMPLE BORDERS TO BE WORKED IN TACKING STITCH

that the marker comes just above where the stitch is to be made. Then put in the needle at the beginning of the blue piece, between the hem edge and the rest of the work, and tuck the end of thread under the hem edge; make the first stitch by again putting in the needle where the blue part of the marker joins the red. Move the marker along a little way, and bring the needle through from the wrong side to the right side, leaving a space equal to the blue section of the marker. Continue in this way along the length of the hem. The use of the marker may be discarded after the first row has been worked. Finish off the stitch by darning back through the thickness of the hem, bringing the needle out through the fold at the outer edge of the hem. Care must be taken not to cut the material when cutting the thread.

Second row.—Demonstrate to the class the making of stitches of the same length as before, but placed so as to come above the spaces of the first row, with the spaces above the stitches of the first row. The width between the first and second rows should be equal to the width of the red, or top part of the marker.

Third row.—Work the third row of tacking stitch in exactly the same manner as the first row. This demonstration will take less time than appears likely, as practically no explanation will be needed when the working of the stitch is clearly shown.

Show the working of the second border in the same way, using a differently coloured wool. Work along the inner edge of the hem, making a row of stitches equal in length to the red part of the marker, leaving spaces of the same length. Work a second row above the first, the stitches and spaces corresponding exactly, and the width between the rows equal in length to the stitches. Using a thread of contrasting colour, work in the same direction and join the end of one stitch along the top row to the beginning of the next stitch along the lower row. The children may now use

odd scraps of material to practise these borders, and to make fresh patterns for themselves.

APPLICATION

Ask the class to suggest names of articles other than bags on which these patterns may be worked.

OVERSEWING

(Details and Demonstration of Lesson 10.)

PREPARATION

Previous knowledge.—Ability to join together two pieces of material by means of running stitch.

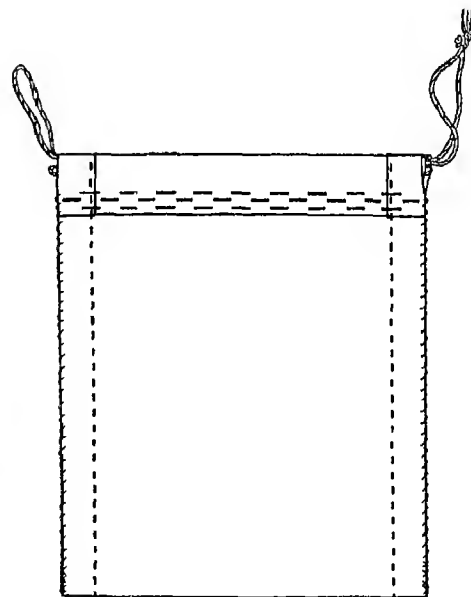
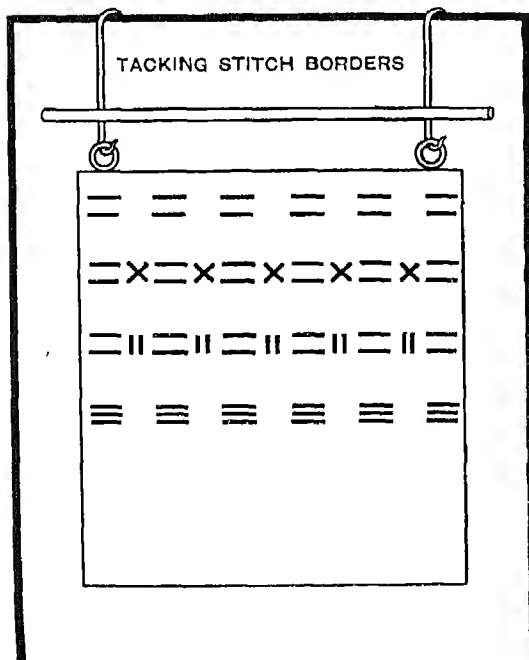
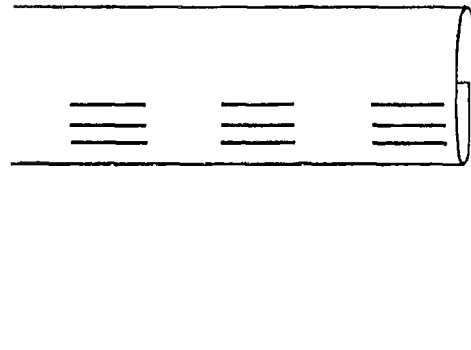
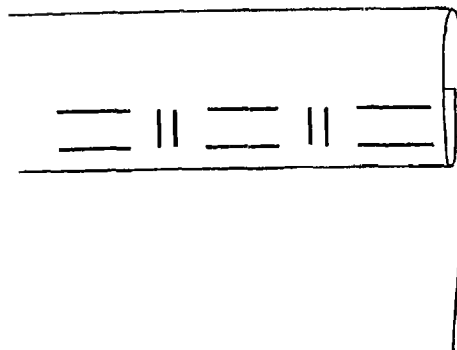
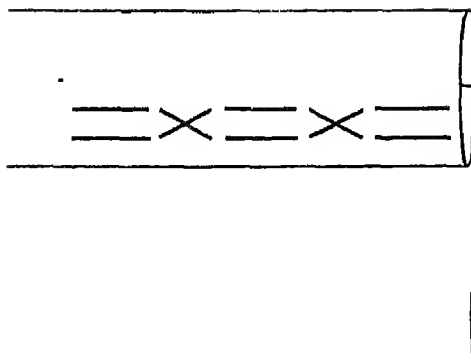
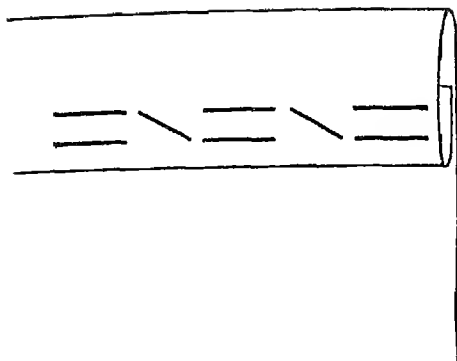
Aim.—The aim of this lesson is to teach a stitch suitable for joining previously neaten edges, to give variety to the work in hand, to give practice in a different form of handling.

Teacher's requirements.—A working specimen in unbleached calico faced on one side with very thin yellow muslin, tarlatan or butter muslin so that the outer and inner (right and wrong) sides are easily distinguished. When finished, that is, with 2 ins wide hems down the sides and 4 ins wide hems at the ends, the size of the demonstration specimen measures 24 ins by 12 ins, the side hems are turned down on the yellow side and the wider end hems on the cream side to make the finished article. Demonstration needle, and four-ply wool in red and black. Large pins.

Children's requirements.—The work they have in hand. Odd scraps of material for practice purposes. Their tools.

INTRODUCTION

Revise, by questioning, the method previously used to join two pieces of material to make a bag. Show the finished article, and explain that there is another and



FINISHED BAG

SIMPLE BORDERS TO BE WORKED IN TACKING STITCH

prettier way of joining which everyone will wish to learn.

PRESENTATION

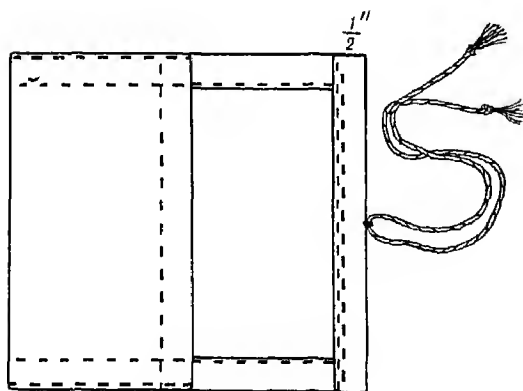
Fold the strip in half to form a bag with the edges lying exactly together and the yellow sides facing each other. Pin the work firmly, placing the pins through the hems in the opposite direction to the length, with the points towards the outside edge. Pinning in this way puckers the work less and enables tacking to be more evenly done and with less twisting of the thread round the pins. The work must be kept flat upon the desk during pinning. When every child has the work correctly pinned, tack the hems together at half the width of the hem below the hem folds, using wool of a contrasting colour. The tacking should be fastened on with a knot and fastened off with a back stitch. Work from the wide hems towards the fold at the bottom of the bag. Demonstrate that the work must be held as flat as possible and over two fingers to avoid puckering.

To work the stitch, hold the specimen so that every child can see, or suspend the work from a bar attached to the board. Put the needle into the work through the back fold at the end of the wide hem, from the left hand towards the right hand, and pull the needle through until a short end of

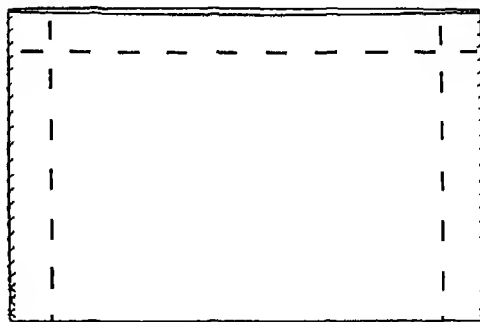
thread is left. Stroke this between the two edges until it lies along them. Then, holding the work between the thumb and first finger of the left hand, put in the needle from the back of the work towards the body, in a perfectly straight direction, just a little way along, at about half the distance between the edge and the tacking. (Note that this will be actually about $\frac{1}{8}$ inch down.) This beginning of the stitch must be well supervised, after which the teacher will demonstrate the working of several stitches. Joining the thread, and fastening off may be dealt with later, when the application of this lesson is discussed. When the need arises, the joining and fastening off of thread may be shown upon the same demonstration specimen with wool of a contrasting colour.

To join the thread, unpick half a stitch so that an end of thread about $\frac{1}{2}$ inch in length lies between the folds. Thread the needle with a new piece of thread and complete the other half of the stitch by inserting the needle into the front fold only, drawing the thread through until another end lies between the folds with the first end. Continue to work, enclosing the ends between the stitches.

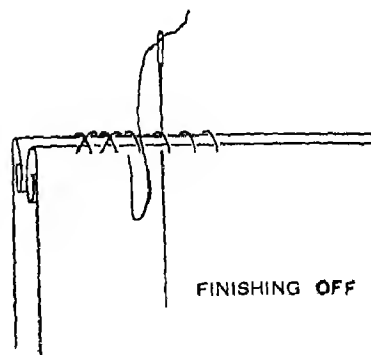
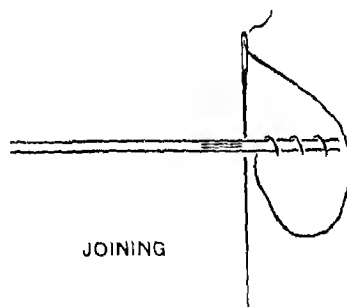
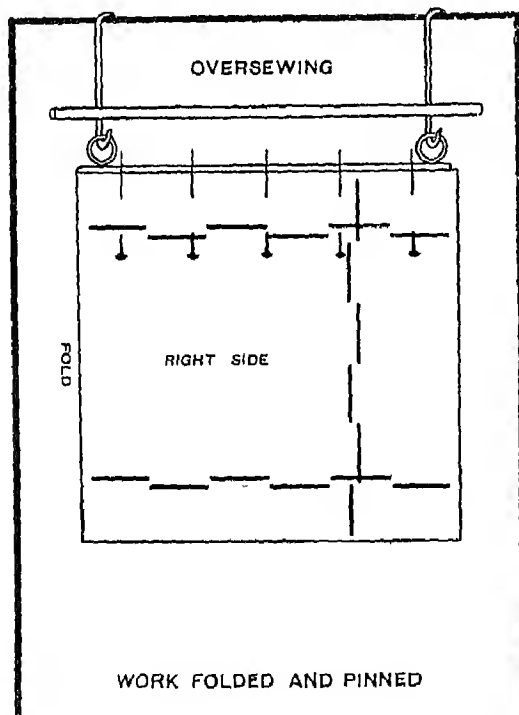
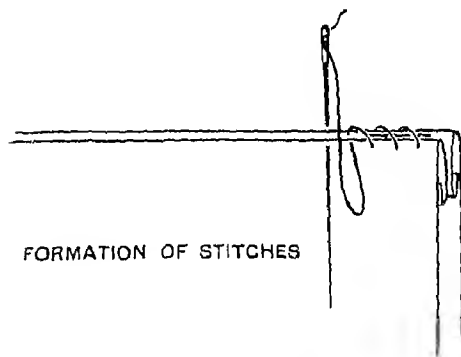
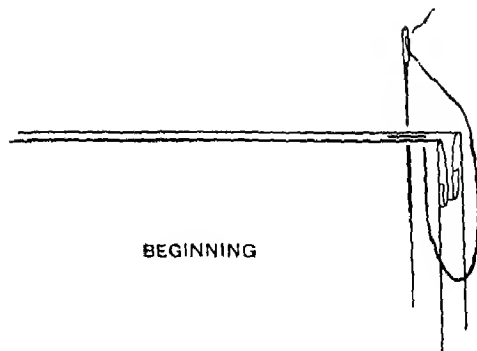
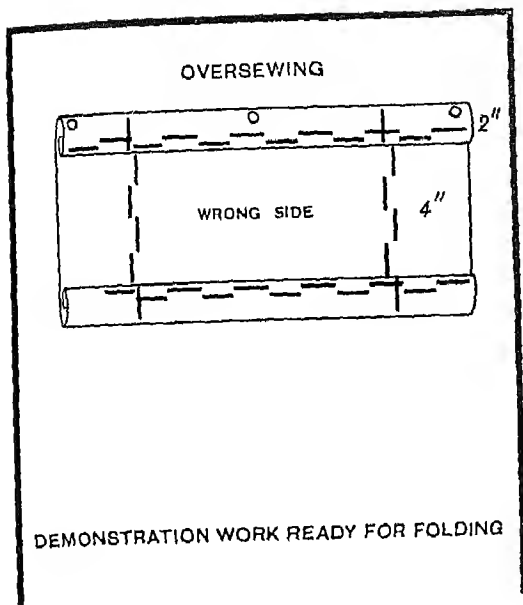
To fasten off, work three or four stitches back over the previous ones, making crosses, then place the needle into a fold a little farther along, and cut off the thread close to the work.



SEWING UP SIDES OF PURSE



HANDKERCHIEF CASE



THE TEACHING OF NATURE STUDY IN THE PRIMARY SCHOOL

(There are 24 Class Pictures (Nos. 117-140 in the portfolio)
associated with the teaching of Nature Study. They are
fully described in the Reference Book)



From the picture by Lord Leighton

[By permission of the City Art Gallery, Leeds

THE RETURN OF PERSEPHONE—CLASS PICTURE 158

The rape of Persephone (she was carried off by Pluto, the god of the underworld) is symbolical of agriculture, her abduction representing the sowing of the seed and her return to her mother the growth of the corn. (See the story in Vol VI, page 114.)

GENERAL INTRODUCTION TO THE FOUR YEARS' COURSE

THE term Nature Study is apt to have a vague connotation and can be taken to include first ideas of all Natural Sciences, since it may be applied to a method involving direct observation and simple experiment, rather than to subject matter. For the purposes of these articles it may be taken to mean the study of living creatures, leading to the more systematic and logical study of Biology at a later stage.

The use of the word *study* should mean something definite, careful, patient, continuous. It should mean that teacher and children have before their minds definite problems, definite inquiries. They should not be satisfied with superficial observations or superficial conclusions. They should develop an attitude of mind which is critical, selective and truthful. In our approach to Nature Study with children therefore we should guard particularly against hasty and slipshod observations, records and conclusions. We must be content to go slowly, to withhold judgment, to watch patiently again and again for the things we want to find out. We must not falsify observations by detaching creatures from their surroundings, or by taking into account only one aspect of their lives, and we must not be too anxious to assign a use or purpose to everything we find.

This points to the first essential condition of Nature Study. Living creatures themselves must be available for the children to watch. There should be two aspects of the study, animals and plants should be watched out of doors, and for purposes of more detailed observation and records, in the classroom also. In many cases the whole study of a particular creature or problem could be carried on out of doors if the

teacher is prepared to take the trouble to organise it, classroom lessons need then only be spent in summarising results, formulating conclusions, and giving further suggestions or directions.

There is no reason why all the children in a class should be working at exactly the same material or problem. There would be certain introductory lessons, and summaries, but as children's interest varies, here is an opportunity for letting them follow their own lines, decide what to record and on what to concentrate. It would be the teacher's business to make sure that, as a result of their individual experience, the children were able to draw simple conclusions from data, and had some knowledge of the course of events in plant and animal life.

The planning of a syllabus should ensure that all the children covered certain ground, and had at the end of their course an acquaintance with certain definite facts and ideas. It is a good plan to choose for each term's work one or two definite ideas, and then select material to illustrate them. The same idea may recur in successive years, but be further developed and differently illustrated. For instance, in the study of fruits, birds, life histories of insects, there is ample material for choice at different times, all equally valuable for illustrating such ideas as the preparation of plants for continuing the race, the effect of the habit of flight upon the lives of birds, or the means by which insects secure food for their offspring and wider distribution for their species.

The first thing for the teacher of Nature Study to do is to learn to rely on her own observations. Books help one to observe better, by drawing attention to the significance of habits or structures, or by correcting one's own ideas or conclusions, but their

content cannot be substituted for first-hand knowledge. The power of accurate observation grows with practice, and at first it is difficult to interpret what one sees, so that a good reference shelf is essential for all those who are learning to observe living things, whether as teachers or taught. The habit of referring to books to identify creatures, and to add to knowledge, cannot begin too young, and every class needs its reference shelf.

Clear, simple drawings are a great help to observation. The best way to investigate structure is to make sketches showing the arrangement and relationship of parts as one works. Accurate drawings also serve as valuable records. A concisely labelled drawing will often explain a structure more clearly than a long description.

At the same time, the power of clear, accurate description in words is essential and must be cultivated. With young children, the training can begin with the labelling of drawings to bring out their meaning, with summarising in a short sentence or two the main points of their morning's study, or with helping to formulate a collective blackboard summary. This should gradually develop into fuller, well-arranged descriptions.

Collective forms of records may be kept by means of wall charts on which observations are entered, or sheets on which drawings made by different children may be mounted to illustrate different activities or phases of some plant's or animal's life.

The keeping of animals and plants in school will be dealt with in connection with detailed lessons. The teacher needs a collection of old saucers, jars, glass plates bound with strips of paper or passe-partout (so that they will not cut fingers), varnished so that they can be washed, small wooden and tin boxes, odd scraps of muslin and gauze, wire and perforated zinc. A low shelf or table (old long school desks are good) is desirable, but a good deal can be done with indoor and outdoor window boxes. A garden in which plants and animals can be cherished, and

even weeds, snails and caterpillars welcomed and given sanctuary, should be regarded as essential. It gives a real background, and reduces the time and effort required for obtaining subjects for one's studies.

Any creature that is still a subject of interest and study should be kept, but it is essential to guard against overcrowding. Too many things result in loss of interest. Keep the "Nature Shelf" or table clear, so that everything can be easily seen. Illustrations, charts, records of any kind that are not in use at the time should be put away. It is a great mistake to cover the walls with pictures. Have *only* the things that are related to the studies of the moment, though these, of course, may extend over a long period. As far as possible, each child should have his own creature to watch and look after. Where it is feasible let the creatures be taken home to be watched.

An important factor in Nature Study is the general attitude of the school. If the changing seasons are marked by little celebrations, a school spring and autumn table, a May Day garlanding or a harvest festival, perhaps a simple service, the children grow up in an atmosphere of interest in the life around them. The reading of nature myths, good nature stories (such as those of Thompson, Seton and Douglas English), selections from Fabre's studies of the lives of insects, accounts of animal life in other countries, general knowledge questions and the recognition and description of plants and animals from pictures, would be legitimate as part of the work in English, and a great help in supplying a background for the direct study which is the vital necessity. For Nature Study cannot be confined to certain class room periods; to be of value it must permeate a child's life.

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The four years' scheme now to be outlined is intended as a guide to choice of material, sequences of ideas and general lines of treatment, rather than to be rigidly followed. The teacher who begins to use it, and who becomes interested, is quite likely to discard some things and add others, to spend much longer on certain parts and to amplify the illustrative material because the children are interested or the locality offers a different choice. The important thing to realise is that there *must* be underlying principles. The notes for the teacher at the beginning of

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The very attempt to set down these lessons makes them seem more formal than they would be in practice, and the most valuable work may be done, not in these lessons at all, but in the intervening periods of individual watching and recording which will give them substance and meaning.

The lessons that follow have not been treated necessarily in the order in which they will be given, but grouped according to the underlying ideas. Since there may need to be interruptions to prepare for later lessons, for instance, to plant bulbs and seeds, the approximate order is indicated below.

FOUR YEARS' COURSE

FIRST YEAR

The course has been planned on the assumption that two half-hour or forty-minute periods would be given each week, but subject matter is not indicated for every period, as time for revision, unexpected additional material bearing on the general idea of the series, showing pictures, reading stories or descriptions, book making and entering data on charts, and extra time for drawing may be needed.

Autumn Term.

Preparation made by plants for next year.

Study of Fruits

- 1 To understand what is meant by a fruit. Snapdragon Plum
- 2 General knowledge of fruits in a hedge
- 3 Some winged and some seed-bearing fruits and their dispersal

Planting of seeds

x—VOL I

Spring Term.

I *Continuation of above idea.*

Life history of a hyacinth and study of the bulb.

II *Life in water.*

Animal studies. 1, Goldfish: 2, Frog.

III. *Spring awakening.*

1 The wakening of the hedge.

2. Horse chestnut and sycamore seedlings.

Summer Term.

Full life and flowering time.

1. Flowers' dependence upon insects
The pollination of flowers as the condition of seed formation. Hawthorn, Bluebell, Sycamore. (The last wind-pollinated)
- 2 Insects' dependence upon plants
Life history of a common butterfly and a common moth.

content cannot be substituted for first-hand knowledge. The power of accurate observation grows with practice, and at first it is difficult to interpret what one sees, so that a good reference shelf is essential for all those who are learning to observe living things, whether as teachers or taught. The habit of referring to books to identify creatures, and to add to knowledge, cannot begin too young, and every class needs its reference shelf.

Clear, simple drawings are a great help to observation. The best way to investigate structure is to make sketches showing the arrangement and relationship of parts as one works. Accurate drawings also serve as valuable records. A concisely labelled drawing will often explain a structure more clearly than a long description.

At the same time, the power of clear, accurate description in words is essential and must be cultivated. With young children, the training can begin with the labelling of drawings to bring out their meaning, with summarising in a short sentence or two the main points of their morning's study, or with helping to formulate a collective blackboard summary. This should gradually develop into fuller, well-arranged descriptions.

Collective forms of records may be kept by means of wall charts on which observations are entered, or sheets on which drawings made by different children may be mounted to illustrate different activities or phases of some plant's or animal's life.

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Autumn Term.

Preparation made by plants for next year.

Study of Fruits

- 1 To understand what is meant by a fruit. Snapdragon. Plum
- 2 General knowledge of fruits in a hedge
- 3 Some winged and succulent fruits and their dispersal

Planting of seeds and bulbs

x—VOL I

Spring Term.

I. *Continuation of above idea.*

Life history of a hyacinth and study of the bulb

II *Life in water*

Animal studies. 1, Goldfish. 2, Frog.

III *Spring awakening.*

- 1 The wakening of the hedge
- 2 Horse chestnut and sycamore seedlings

Summer Term.

Full life and flowering time.

- 1 Flowers' dependence upon insects
The pollination of flowers as the condition of seed formation Hawthorn, Bluebell, Sycamore (The last wind-pollinated)
- 2 Insects' dependence upon plants.
Life history of a common butterfly and a common moth

SECOND YEAR

Each year, continuation of any interests started in first year, incidentally, e.g. watching for chrysalises, formation of fruits from flowers on trees, the gradual slowing down of activity in the hedge, both of plants and insects, the late flowers Tree seedlings Collecting and naming fruits

Autumn Term.

- I *As last year, preparations made by plants for next year.*

Fruits

In the hedge: Blackberry, Hips and Haws, Hazel Nuts, either Wild Parsnip or Cow Parsley, Burdock

In the garden Hollyhock, Nasturtium, Apple

Bulbs Daffodil

- II. *Hibernation of animals* Study of snails. Chrysalises

Spring Term.*Spring Awakening.*

- I *Birds which come inland or southward.*

(For lessons on Birds see Vol. III.)

- II *Animals which winter in the soil:* Earthworms

- III Growth of Daffodil

Hazel catkins.

Willow catkins.

Broad Bean, Mustard and Cress, Sunflower seeds, Lesser Celandine, Wood Anemone

Summer Term.

- I *Further flower study.* Buttercup, Poppy, Wild Rose, White Dead Nettle, Sweet Pea, Dandelion, Groundsel, Thistle, Goatsbeard, chiefly for their fruits

- II *Climbing plants.* Sweet Pea, Runner Bean, Wild Rose

- III. *Continuous study of snails* Life history Slugs

- IV. *Life in water* Pond Snails, Pond insects, e.g. Water Beetle, Dragonfly, Caddis Worm.

THIRD YEAR**Autumn Term.**

- I *Preparations for continuing life of race or individual plants, other than by seeds.*

Study of a whole plant, whose life history has been watched the Wall-flower.

Study of surface and underground stems Violet, Cinquefoil, Bistort

Food storage Potato, Crocus corms

Root tubers of Celandine and Wood Anemone

Non-flowering plants. Toadstools and Puffballs

- II *Resident winter birds.* How they obtain food

Soft-billed Blackbird, Thrush, Starling, Robin

Hard-billed. Finches and Yellowhammer

Autumn and Early Spring Term.

- III *Definite gardening should begin.* The children would dig and prepare their own beds, and be shown how to trim edges and divide clumps of perennials

Life of the soil Cockchafer and other beetle "grubs," and pupae Millipedes and centipedes. Woodlice. Simple soil experiments

- IV. *Non-flowering plants* Mosses Lichens Moulds

- V Simple experiments with seedlings to find out the best conditions for their growth

- VI Life history of Crocus.

FIRST YEAR'S COURSE OF NATURE STUDY 303

Summer Term.

Pond Life. Recognition and growth of common water plants Water insects, e.g. "Bloodworm," gnat and other fly larvae Water Spiders Newts
Life in the Garden. Certain life histories Underground food storage, e.g. Carrot, Radish

FOURTH YEAR

Autumn Term.

I *Preparation of plants for the winter.*

Tree Study Form from the mass of a tree Leaf changes and fall Evergreens Relation to climate and altitude Protection of deciduous trees in winter Recognition of winter buds and interpretation of markings of twig Simple analysis of tree form.

II Spiders—especially the Garden Spider and the House Spider.

Spring Term.

I Opening of buds. Different kinds of bud scales and leaf arrangement

II. Experiments to find out how water is drawn up a plant

Summer Term.

Study of weeds, their root and leaf systems, flowers and fruit.
Study of Woodland and Ditch
The Garden

CHILDREN'S BOOKS

The following books published by Macmillan cover the whole work in Nature Study for a four years' course in the Primary (Junior) School

Look and Find Out. Seven books by W P Westall, F L S, F S A Scot, and Kate Harvey, M Sc

Nature Study Readers Three books by Kate Harvey, M Sc.

Essentials to the Study of Nature and Simple Biology A book for the last year of the Primary School and the first year of the Secondary School, by Kate Harvey, M Sc

The Children's Nature Books Four books each with sixteen coloured plates, by Kate Harvey, M Sc, Mary Daunt and E J S Lay.

Adventures into Nature Parallel books for the "A" and "B" streams in Junior Schools Four volumes each with sixteen coloured plates, by Kate Harvey, M Sc, Mary Daunt and E. J S Lay

Macmillan's Nature Class Pictures A series of sixty-two large coloured plates with a complete Reference Book, by Kate Harvey, M Sc, and E J S Lay

FIRST YEAR'S COURSE OF NATURE STUDY

. APPROXIMATE ORDER OF LESSONS

Autumn Term.

September

Snapdragon fruits (2 periods)
The Plum
Hedge fruits—preparation

October

Visit to hedge
Results of visit
Planting of bulbs
Sycamore fruits

November

Ash and Lime fruits (2 periods).
Planting seeds.
Grapes and raisins.

December

Holly.

Mistletoe.

Frog spawn.

Honeysuckle and Elder buds.

April

Tadpoles and Frogs.

Spring Term.*January*The Goldfish (spread over several periods,
group work)

The Hyacinth plant.

February

Sycamore seedlings

The Hyacinth flowers

Horse Chestnut seedlings.

March

The waking hedge.

Goose Grass seedlings

Summer Term.*May*

Continue Tadpoles

Hawthorn flowers.

Bluebells

Sycamore flowers

June and July

Life history of Moths and Butterflies

Continued observations of seedlings and
flowers, to see subsequent stages of
development.

Climbing plants of the hedge

I. SNAPDRAGON FRUITS**POINTS FOR THE TEACHER'S CONSIDERATION**

THE formation of seeds is one of the chief means of providing for the continuance and wider dispersal of plants. Seeds are resistant resting bodies

which are able to lie dormant until the requisite warmth and water supply enable them to sprout, that is, usually throughout the winter (though many small seeds ger-

minate in the autumn in mild conditions) They are borne in the heart of flowers, hence the seed vessel or *ovary* and the pollen-bearing *stamens* are the essential structures of flowers The incipient seeds are called *ovules*. A seed is part of the result of the union of a female cell, or life unit, the *egg cell*, embedded in the ovule, with a male cell lying inside a *pollen grain*

When this union has been effected, the ovule grows into a seed It grows larger, its wall becomes hard and resistant, and it draws in from the parent plant a store of concentrated food (usually rich in protein and starch) upon which the young plant or *embryo* arising from the fertilised egg cell will feed

In addition, changes take place in the ovary wall, which also grows The ripened ovary with the seeds is called the fruit, the ripened ovary wall is called the *pericarp* (peri=around, carp=fruit). The pericarp may become either woody or succulent, remain closed or develop some mechanism for splitting open to shed the seeds Other parts of the flower usually fall away, but they may remain, change their form, and take part in the dispersal of the seeds. For instance, in the Wild Clematis, the style or stalk which separates the stigma from the ovary becomes fringed with fine hairs, forming a plume by which the fruit may be borne away on the wind, while in the Wood Avens, it becomes hooked and can be attached to the coat of animals Sometimes, e.g. Tormentil, the fruit stalk will bend over so that the fruit is brought close to the ground, or even pressed into it, and the seeds are planted (Plate III). In the study of fruits, stress should be laid on these mechanisms.

THE LESSON

Two half-hour periods.

Aim.—The conception of a fruit as a ripened ovary, containing seeds.

Material.—Sprays of Snapdragon with both flowers and fruits, one between two children. Some fruits cut across to show the seeds.

Introduction.—Remind the children of the Harvest Festival in which we rejoice for "the kindly fruits of the earth" which give us food—grain, apples, plums.

Name some other fruits that ripen earlier in the year

Though fruits may be formed all through the summer, yet we associate them particularly with autumn because the greater number are ripe then.

We eat a great many fruits and seeds, so do the birds; while the squirrels and mice store them for the winter—nuts, acorns, grain We store them, too, but not only to eat We set some aside to plant the seed for next year, so that we shall have new plants and more fruits next autumn. Now this is exactly what the plants themselves do They do not really grow their seeds for us, but for themselves Why do they need them? (To produce new plants next year.) Where do they grow their seeds? (Inside the flower)

Children's aim.—We are going to see how much we can find out about the way seeds grow in the Snapdragon We can see just what happens because it has flowers, unripe seeds and ripe seeds all at the same time

I. First of all, where do you think the ripe seeds are? (In the hard brown cups near the bottom of the stalk) Shake them and see. The black seeds rattle inside, and some are shot out from the two or three holes near the top, just as if you were shaking a little pepper pot These pepper pots are really the fruits, because a *fruit is something in which seeds grow*.

Collect the seeds, ready to plant later.

II. Now look at the unripe fruits, and tell me all you can about them.

(1) They are green, and not so hard as the ripe ones

- (2) Those near the top of the stalk are smaller than the lower ones. (They have not grown so large. They are younger)
- (3) They have no holes to let out the seeds.
- (4) Those which are just opening have three holes, but the older ones have only two. The two lower holes have joined together (Plate II)
- (5) The holes are formed by little flaps which curl back
- (6) The younger fruits have a long, thin stalk growing out of the top, but this has dried up in the older ones. (Plate II)

These observations are made by the children, but the teacher, by questions and rejection of vague or inaccurate suggestions, should help to formulate them clearly. In this way a standard of accurate description can be attained. Note that, while no technical terms are necessary, details of structure can be seen and carefully distinguished.

Draw attention to the cut fruits, so that the children can see that there are two compartments with seeds in each. The unripe seeds are nearly white, and fill the cavity completely. Later, as the fruit dries, they become free and lie loose in the cavity.

III. Now we will see where the fruits are formed. Can you find out?

Squeeze the throat of one of the flowers and look inside. Can you see the tip of the thin stalk which we noticed at the top of the unripe fruits? It is bent slightly towards you, and lies under the hood of the flower. Trace it down. Some of the flowers drop off as you squeeze them, and you can see that the fruit grows down at the bottom, inside the flower. So you see the fruit is really part of the flower. But we do not call it a fruit until the flower has withered or dropped off. While it is enclosed by the flower we call it the *ovary*, and the little unripe seeds the *ovules*.

(Cut some ovaries across so that the children can have an opportunity of seeing the ovules, and leave them on the table to be looked at with a hand lens.)

IV. Conclusion.—Now tell me exactly what we mean by a fruit. (Something in which seeds grow. Something growing inside a flower.) Reject suggestions which do not apply to *all* fruits or include essential points, e.g. something we can eat, and build up the definition, writing it on the blackboard: "A fruit is the ripened ovary of a flower, containing seeds."

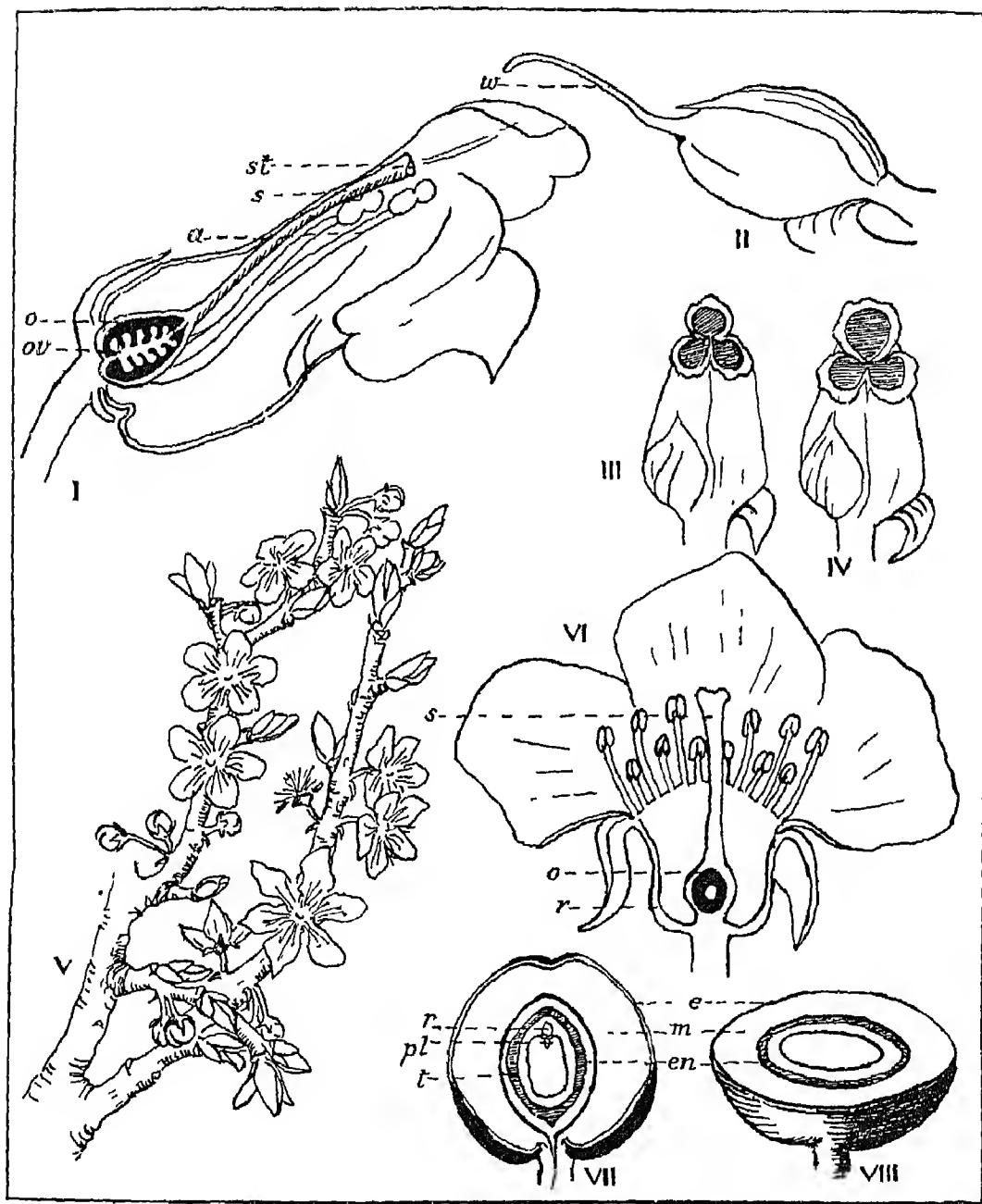
The second half-hour period should be devoted to accurate record making, by means of drawing and concise labelling. Since this will be the beginning of systematic recording, it is a good thing to let the children make special books (one large sheet of drawing paper will fold into two books) with neat brown paper covers tied with coloured raffia or a twisted cord. The title can be carefully printed on the cover, *Autumn Nature Studies*. A little time should be given to explaining the need for careful drawings, well spaced and surrounded by a margin (let them look at a well-printed book for proportion of margins). Emphasise the point that every drawing is made to *show something definite*, so that we must choose carefully what we will draw, and then *label it to explain what it shows*. We must make a clear, clean outline (no shading) and if the actual object is small, we may make the drawing larger, and then show the true size by a cross. When these ideas have been put before the children, insist always on having this procedure carried out.

V. The record.—Ask what drawings we should choose to make, to show the growth of the Snapdragon fruit.

(Rule out the flower with the ovary, as too difficult.)

- (1) The unripe fruit
- (2) The ripening fruit with three holes—a front view
- (3) The ripe fruit with two holes

PLATE I



SNAPDRAGON I Vertical section of flower *o*, ovary, *ov*, ovules, *s*, style, *st*, stigma, *a*, stamens II Unripe fruit (side view) *w*, withered style III Ripening fruit (front view) showing the 3 holes by which the seeds escape IV A ripe fruit—the two lower holes merged into one (front view)

WILD PLUM V Flowering branch VI Vertical section of flower showing where the fruit develops *o*, ovary, *s*, style, *r*, receptacle VII, VIII Longitudinal and transverse sections of fruit *e*, epicarp, *en*, endocarp, *m*, mesocarp, *r*, radicle, *pl*, plumule, *t*, testa

Half a page will be enough space. Heading: Growth of Snapdragon fruit. Let the children space their drawings and show by a cross the actual size, and then draw the sketch.

Then discuss the labelling of the drawings and let them write what they like beside each to describe it: e.g. (1) Green unripe fruit; (2) Ripening fruit. Three holes to let seeds out; (3) Ripe fruit. Seeds gone. By criticism of the books as they are marked you will gradually improve this.

VI. Further work.—Other examples of fruits and flowers found simultaneously should be shown to the children, so that the idea of the ripening ovary receives further

emphasis, e.g. Poppy, Viola, White Dead Nettle.

A wall sheet can be made. Suggest that the children shall bring *one* example of every fruit they can find. These can be named and displayed. Dry fruits can be pressed and mounted on a sheet of cardboard.

WALL SHEET

Autumn Fruits

Date	Fruit	Where found	By whom

Later in the term, the sheet can probably be used as the basis for a lesson on the relation of the means of distribution to the habitat.

II. THE PLUM



POINTS FOR THE TEACHER'S CONSIDERATION

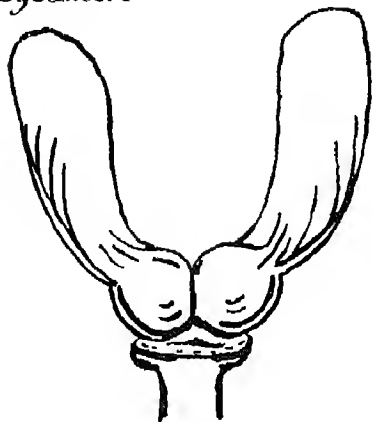
A PLUM is an example of a succulent fruit developed from a *perigynous* flower, that is to say, the ovary is partly above and partly below, and therefore surrounded by the other parts of the flower (Plate I, Diag. 6). The ovary has one cavity and one seed. The Sloe is

fertilised by pollen from other flowers, that is, cross-fertilised, and provides honey along the edge of the *receptacle*, to which the sepals, petals and stamens are attached. Most of the other plums can be self-fertilised as well. The flower is one of the earliest of the fruit blossoms to open, the Blackthorn

SKETCHES FOR THE BLACKBOARD

PLATE II

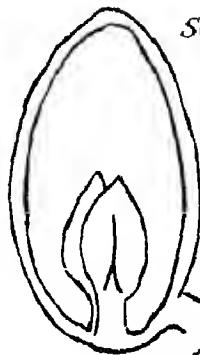
Sycamore



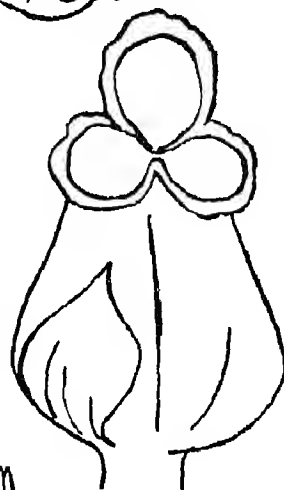
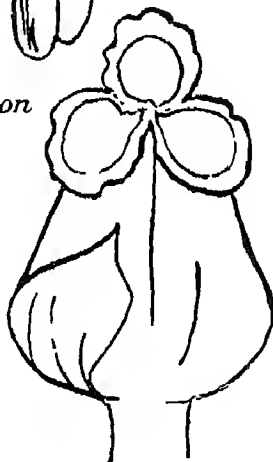
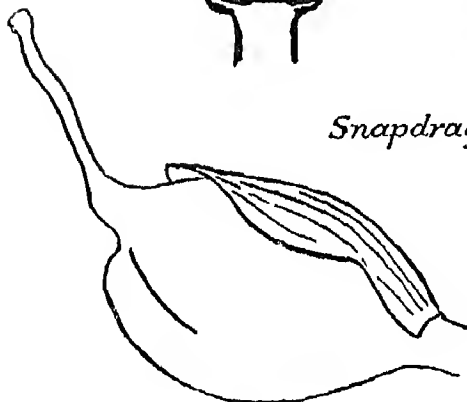
Ash



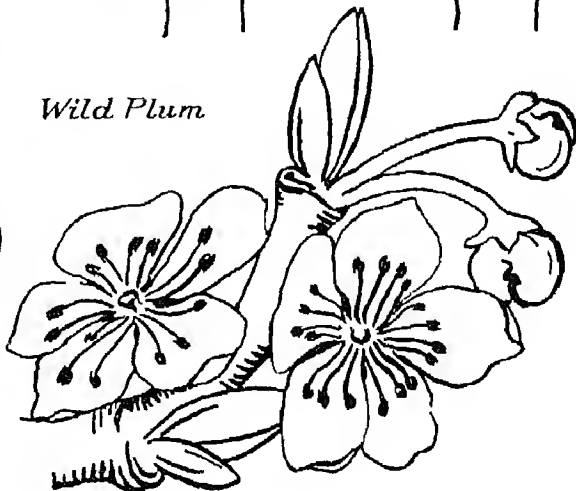
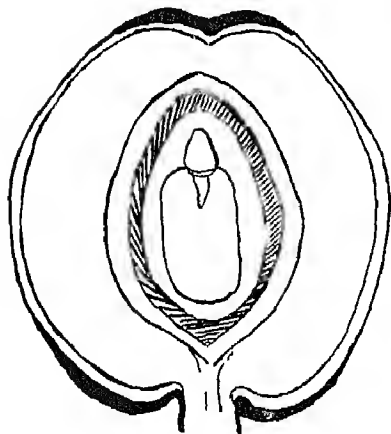
Seed of Ash



Snapdragon



Wild Plum



or Sloe often appearing in late February or early March. As soon as pollination is effected, the petals are scattered and the stamens begin to shrivel, but the development of the fruit is a slow process, so that it is not ripe till August or later, according to the variety. The Sloe is the commonest wild plum, but the hard yellow Bullace is still found in many parts of England, and in Cheshire and Cumberland it is common to see Damsons growing in the hedges in a semi-wild condition with very little cultivation. The large edible plums have arisen from wild forms by selection and careful attention. After fertilisation the ovary grows in size, and the pericarp takes up water from the stream which is always rising up the channels of the tree. Sugar and some flavouring substance are formed. The outer skin, called the *epicarp*, remains thin and soft. The middle layer or *mesocarp*, forms the sweet, juicy pulp, and the innermost layer of the pericarp becomes woody, forming the hard stone or *endocarp* which protects the kernel or seed inside it from being digested by animals which eat the pulp. As the fruit ripens, the epicarp changes colour, from green to the attractive mellow gold, crimson or deep purple-black which announces to the blackbirds, thrushes, starlings and many other birds, that the feast is ready.

The change of colour usually takes place quite rapidly at the last, and soon after the final colour is attained, the fruit drops from the tree, often bursting open in its fall. Wasps and other insects take advantage of the broken fruits. Sometimes a sweet, gum-like substance is found exuding from the punctures made by birds. For the early stages of ripening, water is necessary, and when full size is reached, the colour and flavour depend upon plenty of sunshine. This is true for all succulent fruits. The ripe fruit is protected by a bloom composed of fine rods of wax arranged close together like velvet pile. This throws off rain which might cause the fruit to rot.

Plums belong to the same family as the Rose, the Rosiflorae, but are more closely

related to the Cherry and Almond. In the Almond, the outer pericarp remains soft, but does not develop a succulent mesocarp and so does not attract birds. The Almond "nut" is the stone containing the seed. The Almond, the Plum and their close relations produce a small quantity of prussic acid which gives the characteristic flavour to the seed. A fruit of this type is called a *drupe*.

THE LESSON

Aim.—To become familiar with the structure of a large, simple fruit before making a wider study of fruits.

Material.—Plums of any kind. Sloes or Damsons would be available; sloes are good because they are hedge fruits. Some of the plums should be cut lengthwise and others across, the stone remaining in one half. A supply of stones which can be cracked open. Little dishes of water and a box of matches. A picture of a branch of blossom, and a vertical section of one flower showing where the plum grows.

Introduction.—When we looked at the Snapdragon fruits, where did we find they were first formed? (Inside the flower) What part of the flower is the fruit formed from? (The part that contains unripe seeds. The ovary) Then do you remember what we mean by a fruit? (A ripened ovary, containing seeds) The Snapdragon had little hard, dry fruits which split open to let out many small seeds. To-day we are going to look at some fruits which are very different.

(Material can be given out at this point or beforehand.)

I. You all know what these fruits are. Now I cannot show you the flowers to see whether they were formed inside, because the flowers were in blossom in March, but I can show you a picture of them. (Diag. of growing flowers and of vertical section.) The little cup (receptacle) has the flower

leaves growing on its edge, and the ovary, which is going to become the fruit, growing in the middle. It is drawn out on top into a little stalk just as it was in the Snapdragon, and it ends in a tiny knob

Look at your fruit and see if you can find any trace of that. (A shrivelled thread in some cases)

II. When this fruit was an ovary inside its flower, it was just a tiny hard green ball. What has happened to it since?

Points required:

- (1) It has grown larger Measure with your ruler and see how long and how wide it is.
- (2) It is soft.
- (3) It is blue-black (or yellow, or red in other plums)
- (4) It is covered with a fine white film which rubs off on your finger when you touch it. We call this the bloom Dip your plum into water. What do you notice? (The water runs off) You cannot wet it Now rub some of the bloom off, and try again. Of what use do you think the bloom is? (It prevents the plum from being made wet, and perhaps rotted, by rain)

Here the teacher might hold a lighted match close to a plum, and show that the bloom melts, then explain that it is really a coat of little sticks of wax, very close together

Now bite just a tiny bit out of your plum, and tell me how it tastes (Sweet, juicy, unless it is a sloe, which is sour and rather dry) The very big juicy plums are grown in orchards for us to eat, and the birds like them; but the wild plums are little sour things, not nearly so nice, and yet the birds seem to like them too

When you bite right into a plum, what do you come to? (The stone)

It may be, sometimes, that when a bird pecks at a little wild plum, it causes it to fall off the tree and roll a little way, or perhaps it may take the plum away, eat the

pulp, and by and by drop the stone, or even swallow it and pass it out, and so the stone is carried quite a long way from the mother plant And there it will lie on the ground and get trodden into the soil or beaten in by rain. Then the hard stone will gradually be softened by the damp soil.

Crack some stones and let the children see the kernel or seed inside What is likely to happen when the hard stone becomes softened? (The seed inside will get wet, too, and will begin to grow)

III. Revision and summary.—Now tell me of what different parts a plum is made up:

The following points are essential.

- (1) The thin, bright-coloured skin, which shows the birds that the fruit is ripe
- (2) The soft, sweet, juicy pulp or flesh, which the birds like to eat. Give details of development and remind the children that the Snapdragon had a dry hard wall, which broke open.
- (3) The hard stone, which protects the seeds from being eaten by birds The birds may take it away and drop it, or they may, by pecking at the fruit, cause it to roll away and decay somewhere.
- (4) The kernel or seed from which a new plant grows. The Snapdragon had many seeds, but they were much smaller.

As this summary is made, make a column of names on the blackboard,—skin, pulp, stone, kernel or seed. With older children, a tabulated comparison of the two fruits could be constructed

Show the children the cut plums and let them make a sketch of the whole fruit and a cut one, naming and explaining the use of the parts.

IV. For continuity of interest plant some of the seeds in a box or pot of damp soil Label with name and date on a wooden plant label, and keep damp The plum stone should have its own depth of soil above it.

III. HEDGE FRUITS



THIS lesson would occupy three periods, the first given to preparation for an actual visit, the second to first-hand observation of a hedge, and the third to collecting and summarising results and drawing conclusions. The first might be quite a short period, a quarter of an hour or twenty minutes, the expedition should have about an hour, exclusive of the time taken to get there and back; and the third would be a normal class period.

POINTS FOR THE TEACHER'S CONSIDERATION

Richard Jefferies, in *Wild Life in a Southern County*, draws attention to the use made of hedges as highways, by birds and small mammals. Many of them never leave the hedge except for a daring dash across open country to shelter again, so that the hedge provides both their home, their food and their road. This association with all sorts of small creatures has had its effect on the plants found in hedges, and especially we notice that many of them take advantage of birds and mammals, perhaps rabbits, voles and various mice and dormice, to distribute

their seeds a little farther afield than if they were merely dropped at the foot of the plant. As an example of this association, here is a list of the fruits found in Autumn in a semi-natural hedge in Essex, where the soil is a mixture of boulder clay and chalk, showing how many fruits have special devices for securing distribution in this way.

Succulent fruits, attractive to birds: Wild Rose, Dogwood, Hawthorn, Wayfaring Tree, Buckthorn, Spindle, Sloe, Elder, Cuckoo Pint (earlier), Woody Nightshade, Black Bryony, White Bryony.

Hooked fruits, becoming attached to coats of animals (and people): Wood Avens, Goose Grass or Cleavers, Hedge Parsley (*Torilis*), Burdock, Agrimony.

Other fruits: Wild Clematis, Hedge Maple, Violet, Selfheal, Black Horehound, and a number of low-growing herbs, Wild Parsnip, and Cow Parsley.

Note that of the trees and shrubs forming the hedge or climbing over it, only two rely on the wind, Hedge Maple and Wild Clematis, all the rest are distributed by birds. Of

those which grow low down in the hedge, only one (Cuckoo Pint) has bright berries which might attract birds, but several are provided with little hooks, and as they are readily detached, they are easily carried away by animals.

The only way to decide whether any particular berry is really eaten by birds, is by actually observing either the bird feeding or the berries pecked open, so that children should look for signs that the berries are really eaten. Rose hips can often be found pecked open, with a few "seeds" still adhering, or quite empty. Crab apples and cultivated apples, cherries, plums, show signs of the birds having pecked them, but does this result in the seeds being exposed or strewn or carried about? Very often the bird makes the first hole in the ripe fruit, which allows the entrance of flies, beetles, or organisms which set up decay, and so ultimately the seeds are set free.

Sometimes, although there is no special device, small hard fruits may be scattered by birds which feed upon them. I once saw five goldfinches feeding on the heads of Cow Parsley and Hardheads or Black Knapweed, and they probably jerked many of the light, easily-detached nutlets away as they alighted, swung on the stalks, and flew away again.

The study of a particular hedge, its plants, birds, insect life and small mammals if the opportunity arises, is a good starting point for what is known as Ecology, the study of plants and animals in relation to their surroundings. It might form the special study for the first two years' work, though that does not mean that all observations need be limited to this field. Expeditions might be made to notice the characteristics of the hedge in different seasons, and the hedge should, if possible, be near enough for the children to visit it alone.

the hedge itself, or climbing over it, or nestling on the bank or in the ditch at its foot.

I. This object would be explained to the children, and the time and place of the visit given them. They would each be given a postcard on which to write the names of all the fruits they find. A letter beside each might indicate the nature of the plant,

T = tree,

B = bush,

C = climbing plant,

H = herb or small plant at the foot.

If preferred, a small field notebook may be inaugurated, made and covered by the children, with a stiff piece of cardboard slipped into the back cover to serve as a pad.

II. The children should then be divided into a convenient number of groups (teams will serve if the team system is in use), each with a leader who will help to keep the group together, and be responsible for making a complete list of the fruits found by them. After reminding the children how the seeds of the Snapdragon are scattered through little holes, the value of planting seeds some distance from the parent plant may be discussed; the children can then look for any forms of fruit which they think might help the plant to scatter the seeds widely. The instance of succulent fruits has already been suggested, and this prepares the way for the teacher to point out other devices as they are found.

Arrange with them not to pick fruits which might serve as winter food for the birds, as the teacher can collect enough for class purposes (recognition or further study by groups of children) and only to gather *one* example of each other kind, as, if the seeds are all gathered, we shall lose our wild flowers.

INTRODUCTORY LESSON

Aim of visit.—To find as many kinds of plants in fruit as possible, and to note where they grow, whether as bushes or trees, forming

THE VISIT

The teacher will trust to her group organisation to keep the class working

together, comparing notes, and not wandering too far. Many of the hedge fruits may be out of reach and she may have to gather examples for the children to see closely.

She will help the children to name their fruits, see that they are using their cards properly, and point out any interesting means of distribution, or signs of the activity of birds. The work will be quite informal, but it will *be* work and the children should be busy making definite observations.

LESSON AFTER VISIT

Aim.—To collect results, summarise and record them, and draw conclusions.

I. The leaders may first of all be given a little time to compare lists with their groups, so that each can present a complete list. They may need advice on how to obtain this quickly. The element of competition between groups here is stimulating.

II. The teacher will then take the list from one leader, letting other leaders supplement it, and note who has the most complete list. The names might be written on the blackboard under the headings already suggested.

III. Those fruits which appear to be eaten by birds may be underlined in coloured chalk, and the possibility of this assisting in their distribution discussed. There are three possibilities of dispersal. Either the seeds may be swallowed with the fleshy pericarp, remain undigested, and be dropped some distance away, or they may be brushed or jerked out as the bird is feeding (see previous lesson), or it is said (e.g. mistletoe), that they are sometimes rubbed off the beak, to which they have stuck, against a tree or fence. The names of fruits which might

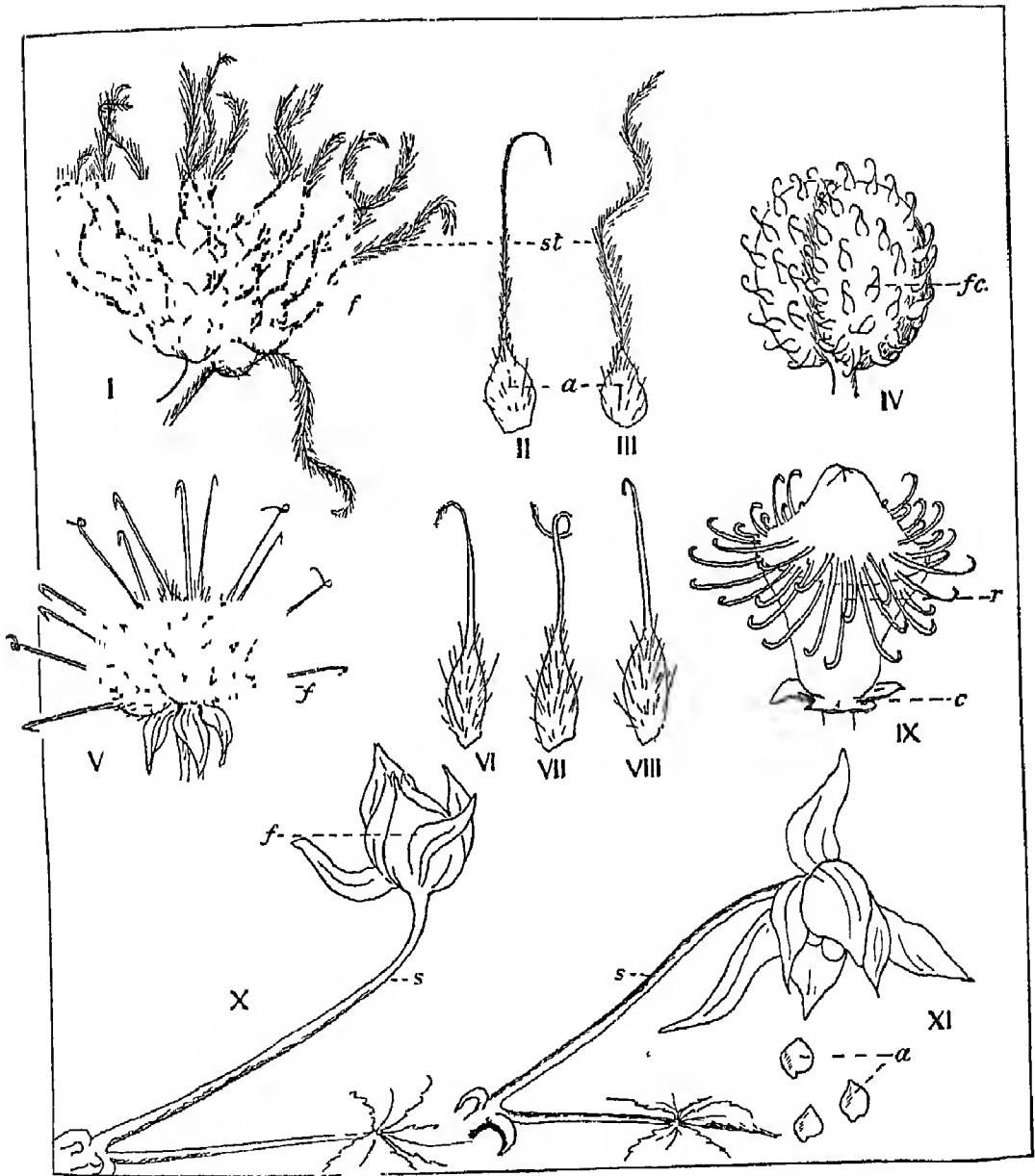
be brushed off by sticking to the coats of animals would then be underlined in another colour, and any evidence taken. The children probably found Goose Grass and Wood Avens sticking to their own coats.

IV. Conclusion.—The actual numbers of fruits possibly distributed in these ways would then be counted, and the teacher would tell the children of the ways of birds and little "beasties" living in hedges.

Children's records.—The children might copy the list arrived at by their combined efforts, with some way of marking the means of distribution, or the teacher may prefer to let them write only the shorter list, (selecting for themselves from the blackboard), of fruits dispersed by birds or animals. Some children might arrange the examples brought back, and print names to attach to them, while the rest select *three* fruits to draw and write about. It would be well to remind them that each drawing must be chosen to show some definite point, and clearly labelled to explain what it shows.

Note.—In town schools it may be impossible to take the children to see a hedge in autumn, although many suburbs still have remnants of country lanes, where hips and haws, woody nightshade, brambles and goose grass can be seen; London and even the outskirts of the mining towns of Lancashire show these in their clayey soils. But failing anything of the kind, it is possible, though nothing like so good, to reconstruct a hedge by selecting some good branches, explaining how they grow, and showing trails of brambles and other climbers which hold on to the hedge by down bent hooks or twisted stems. It would be desirable to supplement this by some photographs of a real hedge in autumn.

PLATE III



CLEMATIS I Fruit showing feathery style *f*, fruit II, III Achenes showing style developing and becoming hairy, *a*, achene, *st*, style

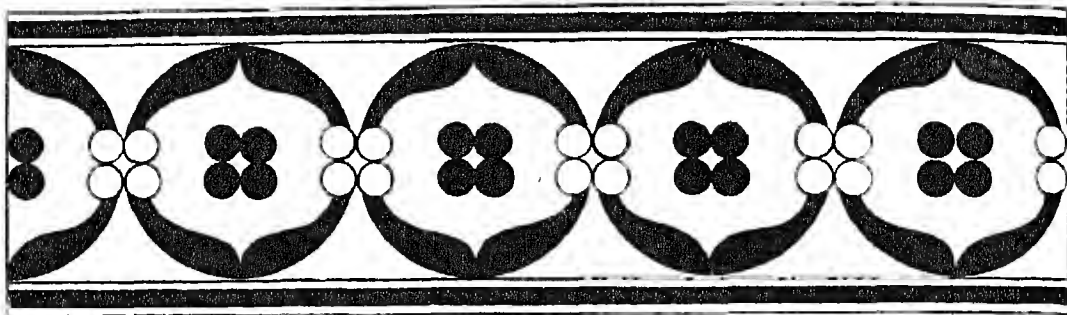
CLEAVERS IV Fruit showing hooked fruit coat (*fc*)

WOOD AVENS V Fruit showing hooked achenes (*f*) VI, VII, VIII. Achenes, showing the bending of the style to form hook

AGRIMONY. IX Fruit showing hooked receptacle (*r*); *c*, remains of calyx.

TORMENTIL X Fruit developing (*f*) The fruit stalk (*s*) gradually bends upwards, and the fruit is held in this position until dispersal takes place XI Dispersal of achenes (*a*) The fruit stalk turns, and bends downwards, and the fruit is brought in contact with the ground

IV. SYCAMORE FRUITS



POINTS FOR THE TEACHER'S CONSIDERATION

WE have seen that the pericarp of a fruit may play an important part in the dispersal of its seeds, in the Snapdragon it becomes woody, dries and splits open in certain weak places to emit the seeds; in the Plum it becomes succulent and attractive to animals. In a great many plants the pericarp becomes dry and woody, but does not split open to let the seed escape. Usually in such cases there is only one seed in each ovary or each chamber of the ovary, so that if the fruit itself is carried away, the seed goes too. Such a fruit, if composed of one chamber only (though there may have been several in the ovary, whose seeds have not matured), is called a *nut*. If there are several distinct chambers, quite free from one another, each becomes a *nutlet* or *achene*, the whole forming a compound fruit, e.g. Buttercup. If several chambers attached together to form an ovary, separate without splitting open when the fruit is ripe, the fruit is called a *schizocarp* (separating fruit, cf. schism). Examples are Hollyhock, Mallow, garden Nasturtium.

The Sycamore fruit develops from an ovary of two chambers or *carpels*, borne in the centre of a pale green flower. The two carpels are flat, and joined along their

inner edges by a median rod or narrow plate. When the fruit is ripe, the two carpels separate by the cleavage of this plate, and fall to the ground. The fruit, therefore, is a kind of *schizocarp*. But there is a special development of the pericarp of the outer edge of each carpel, forming a wing-like expanse which can be caught by the wind. Such winged fruits are called *samaras*.

The Sycamore flowers are arranged in spiral clusters on a drooping stalk (a similar plan to the Snapdragon except that this is erect), so that the fruits hang in bunches, each pair of carpels developed from one flower having its own stalk branching from the main one. Sometimes three instead of two *samaras* will form one complete fruit.

THE LESSON

Am.—To find out how Sycamore fruits are dispersed

Material.—Bunches of Sycamore fruits, if possible still attached to a twig, which can be separated so that each child has a complete fruit. Soaked fruits, some split open and others with contents removed and teased out, i.e. loosened

Introduction.—Show the children the branch of fruits and tell them what they are. State the aim of the lesson. If there were Sycamore trees (or Hedge Maple could be substituted for this lesson) in the hedge visited, recall their position and appearance. If not, a photograph might be shown.

I. Notice how the whole bunch grows, the main stalk and the branches from it. Point out that, like the Snapdragon, it must have had many flowers on one stalk, only these hang down. Ask if the children have ever noticed green tassels, 4 or 5 inches long, hanging from the Sycamore trees. This is something to look out for next April or May. (In Maples, the clusters of flowers are bright yellow-green, and flat like Hawthorn.)

II. Separate and distribute the fruits. Each child should examine a pair of carpels and notice how they are arranged.

Questions.—When we find the fruits lying on the ground, are they in pairs or single? (Usually single, but occasionally in pairs.) When do you find them? How far away from the tree? (Sometimes quite a distance, so that no tree is in sight. Often seen blown along the streets in crowds on a windy day.) Why do you suppose they can be blown so far? (Because they have a wing, something like that of a Dragonfly or Daddy-long-legs.)

III. To see *how* the fruits fly, take the class out into the playground, if possible, when it is rather windy. When the fruits are 20 or 40 feet or more high on the tree, they have a good chance of being caught by wind, so the best thing to do is to drop them from a second storey window and let the children watch how the wind catches and carries them. They may even soar over a roof and be blown out of sight. If this is not possible, stand on a chair and throw them up as high as you can, and let the children in turn do the same. Try both pairs and single samaras. It will be noticed

that the pairs fall to the ground, but the single fruits are buoyed up. They spin round, almost horizontally, but with the wing slightly raised above the seed. Let the children describe this movement. It can be seen indoors if there is an upper draught from a window, but not so successfully.

IV. Return to the classroom to examine the fruits more closely. Two questions arise

- (1) Why do the single fruits spin round?
- (2) Why are the single fruits carried by the wind, yet the double ones are not?

Let the children examine single fruits. Can they suggest any reason? Draw attention to the strong, rigid vein that runs down one side of the wing, with other veins running from it. This stiffens the wing, so that it does not give way when the wind presses against it, but resists like a kite, and so is pushed away, and turns like a wheel or the arm of a windmill, using the heavy seed as a centre or pivot round which to swing. Show a bird's wing feather, where the stiff rod is also at one side, though not quite at the edge.

The double fruits are balanced by their two veins and so the wind presses equally on both, and cannot push one round. Therefore they are not so easily moved along by the wind, and fall to the ground. If a bird or an aeroplane stopped flying it would fall; anything that is not actually lighter than air has to move to keep up.

Ask the children whether the fruit really flies. It does not, because it has no movement of its own, it only rests on the air and is blown along. Birds and insects and aeroplanes each have their own engines to move them. (A bird's engine is its heart and muscles.) The Sycamore fruit is more like a kite or a glider.

V. Ask what happens to the fruits when they fall, and in what sort of places they are

found? If they are blown into sheltered, damp places, drifting leaves will cover them. Then the outer covering will gradually become soft and fibrous, and finally decay. When this happens the seed inside can take up water and begin to grow.

Pass round some fruits in saucers, some with half the pericarp removed, others with the seeds shown separately and loosened a little. The seed will be seen to consist of two bright green leaves and a little root, closely coiled together. It is enclosed in a fine, brown skin.

VI. Plant some of the seeds in leaf mould or soil in pots or saucers and keep damp.

VII. Records.—Let the children draw a pair of fruits and a single fruit, and name the parts, saying what purpose the wing and vein serve. They should write a sentence or two explaining how the fruit flies. For instance.

Sycamore fruits usually fall separately. Each fruit has a wing, which is part of the fruit wall. It has a vein along one side which helps it to fly. When the wind lifts the fruit, it spins round, and can be carried a long way. It does not really fly, it is blown on the wind.

If preferred, the summary can be constructed collectively by the class. In either case, the children might be helped by a short series of questions, of which a copy may be given to each child to paste into his book and answer, or the questions may be written on the blackboard, e.g.

How do Sycamore fruits fall off the tree?
What helps them to fly?

How do they fly? Do they really fly?

The records may well employ a second period

VIII.—Further work.

(1) Suggest that the children shall look for the fruits out of doors, and notice particularly where they find them, how far the spot is from the nearest Sycamore tree, and when the fruits begin to grow (Sycamore fruits will often be found in bunches, drawn into the tops of worm burrows, probably to keep out the cold. The seed is drawn in first, the wing sticks out, and there is no sign of their being eaten. This may quite well help them to germinate.)

(2) In the following spring look for the flowers. Keep a branch of Sycamore in flower in the classroom and watch the development of the fruits, which begins at once after fertilisation.

V. ASH AND LIME FRUITS

THE LESSON

THIS should serve as an application of the preceding lesson. Two periods

Aim.—To find out whether the Ash and Lime fruits fly, and if so, how

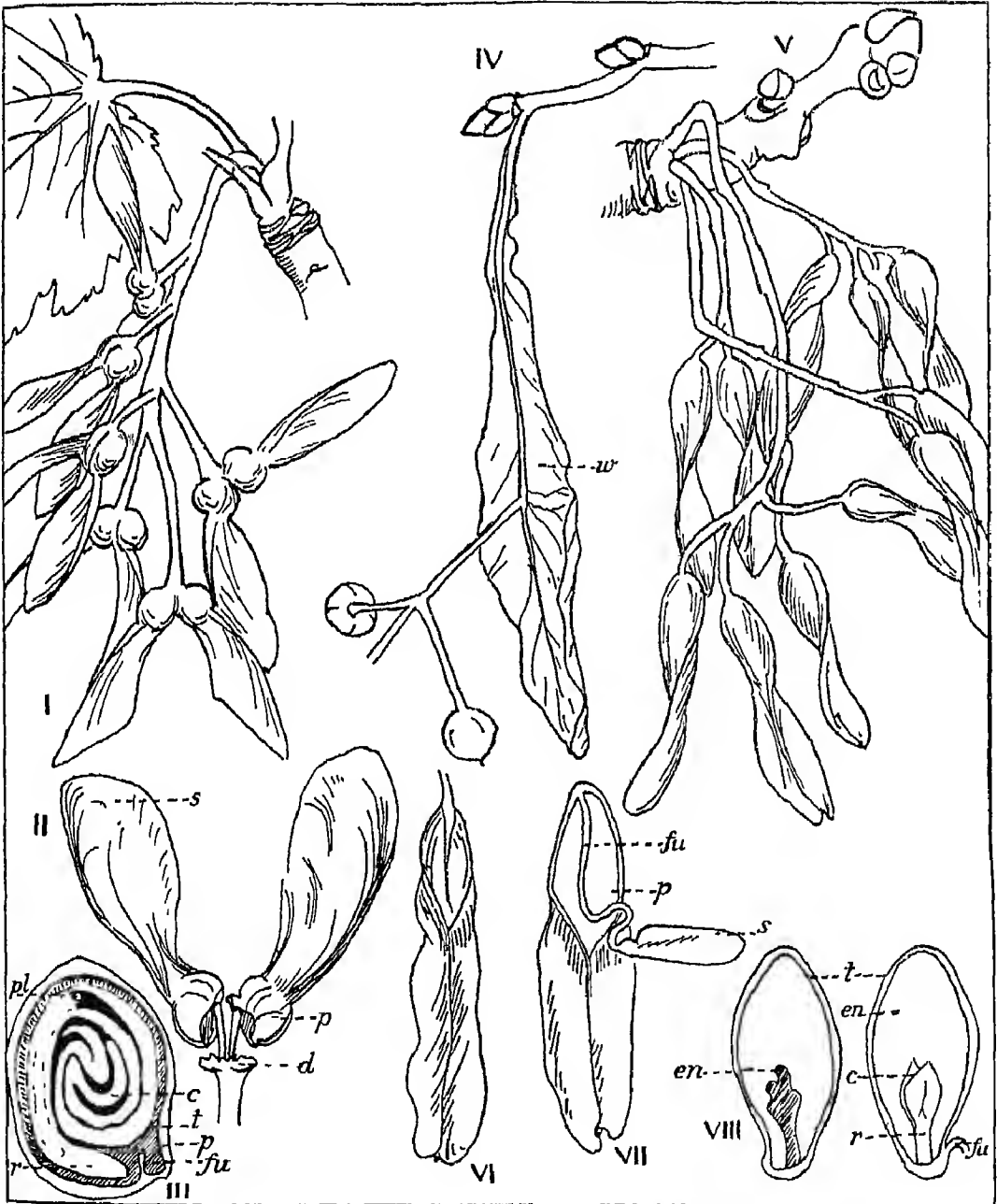
Material.—Enough Ash and Lime fruits for the children to have two or three each. They might be shown the fruits previously

and asked to collect them, if these are easily obtainable.

Introduction.—Recall the main features of the Sycamore fruit, and show the Ash and Lime fruits—the Ash in bunches or “keys”

I. Let the children take the fruits out into the playground as before and try them individually. When the children are satisfied, let them come back and try to explain inde-

PLATE IV



SYCAMORE I Bunch of fruits II Single fruit showing samaras separating *s*, samara, *d*, disk, *p*, pericarp. III Vertical section of seed showing curled up embryo *p*, pericarp, *t*, testa, *c*, cotyledons, *pl*, plumule, *r*, radicle, *fu*, funicle

LIME IV Fruit on branch *w*, wing

ASH V Bunch of fruits VI Fruit VII Fruit opened to show attachment of seed to fruit wall *fu*, funicle (seed stalk), *p*, pericarp, *s*, seed VIII Dissection of seed to show young plant (embryo) embedded in endosperm *t*, testa, *c*, cotyledons, *r*, radicle, *fu*, funicle, *en*, endosperm (food for young plant).

pendently, by drawings and short descriptive sentences, how the fruits move and why they are able to do so. They may, as before, be helped by short written instructions. It is sometimes a useful plan to prepare such instructions, leaving spaces for the children to fill in drawings and answers. For instance

Show by drawings why (1) the Ash fruit, (2) the Lime fruit can be carried on the wind. Write beside your drawings what they show

(Space for drawing.)

Describe what happened when you threw the fruits up in the air.

(Space for answer)

This set of drawings and notes would be pasted into the Nature Study notebooks

II. In the next period, the children's answers and drawings, in the meantime carefully examined by the teacher, would be discussed.

The drawings.—Arrangement, clearness of line and convenience of size, would first be dealt with; good drawings might be shown as an example. Then ask the children whether they think their drawings really show why the wind can carry each fruit? What should they show? The point of importance is the wing in each case

The explanations.—Take the Ash first as the simpler, and make clear how it moves and why it is able to do so, incorporating in writing any thoughtful explanations the children have made. First ask what they saw happen when they threw the fruits in the air. If the wind caught them, they too spun round, quickly, with the wing tilted upward and the seed forming the pivot. We found in the Sycamore that the strong rib at one side enabled the wind to catch it and push it round. Is there anything here to help it? (The thickest part is not at the edge but in the middle, but there is a slight twist on each wing so that the wind catches, and pushes, first one side and

then the other and so makes it spin. Boys may know the propeller of an aeroplane or ship, with a twist on the blade)

The Lime fruit spins round, too, and again, the seed is lowest. Does the seed act as a pivot again here? (Yes, for the wing can be seen turning round it.) The seed and stalk together act as a pivot. It is as if someone took hold of the top of the stalk and twisted it round, with the wing and seed hanging down. (When we speak of the seed, in each of the three cases, it is enclosed by the pericarp. We cannot see the seed itself. In the Lime the fruit is a nut.)

Now let us look at the wing of the Lime. It is not part of the fruit itself. What do you think it really is? (A leaf) It is a leaf, of a special shape, which has become joined to the fruit stalk (or flower stalk), along part of its length. It is green and soft to begin with, but becomes hard and acts as a wing. We call it a *bract*.

III. By questions compare the chief features of the three fruits, orally, writing the names on the blackboard to help in keeping the sequence clear

<i>Sycamore.</i>	<i>Ash</i>	<i>Lime</i>
Spins round nearly flat.	Spins round slanting	Spins round with stalk straight up
Seed as pivot, lower than wing	Same	Seed and stalk as pivot, seed at bottom
Stiff vein. Wind catches one side	Wing is twisted.	
	Wind catches each side in turn	Wind catches under wing, and lifts it

IV. Further work.—Look for Lime flowers and Ash flowers. As these seeds germinate very slowly, if they are planted, the children will get no result that year, but there is no reason why they should not find this out by experience

VI. GRAPES, CURRANTS, AND RAISINS



POINTS FOR THE TEACHER'S CONSIDERATION

IT is essential to a true outlook that children should think of the fruits which we cultivate for our use, as having been grown in the first place for the plant's own purpose of seed dispersal. The Plum gave us an example of a fruit of one carpel with a succulent mesocarp and hard endocarp. The Grape is an example of a fruit with two carpels, in which the whole pericarp, except the thin skin, becomes succulent, the dividing walls break down and the seeds are embedded in the juicy pulp. This type of fruit is called a *berry*. Other examples besides the small fruits commonly known as berries are oranges and lemons, tomatoes, cucumbers, marrows. Bananas are seedless berries propagated by vegetative means. Any of these may be taken as additional illustrations and exercises in accurate observation, provided they are related to the whole study of fruits as means of dispersal.

THE LESSON

Aim.—To see how grapes, currants and raisins could be dispersed

Material.—A bunch of white grapes, some currants and raisins, preferably different varieties. Some leaves if possible.

Introduction.—Show the grapes. Ask which of the fruits we have examined is most like them. (The Plum) In what way do they seem much the same? (They are both juicy, or succulent, both sweet-tasting, both have a thin skin, both have a bloom of wax on the skin to keep out the rain)

I. Let the children notice and describe how the grapes grow. They are arranged in a bunch on a branching stalk, so they grow rather like the Sycamore fruits. They are heavy and the bunches hang down. Tell them that the wild grapes are small and sour; if we want large, sweet ones we have to manure them well, and thin out each bunch by removing some to give others more room. They want a great deal of air, warmth and sunshine to ripen them. They come from France, Spain, Italy, S Africa—countries much farther south than we

are, where there is plenty of sunshine, and they grow on the hillsides on long terraces or steps facing the sun. The vines are trained to climb over poles. Besides those that are grown to eat, far more are grown to make wine. The grape harvest has from very ancient times been very important in those countries, a time of feasting and songs and dancing, when the grapes were gathered and the juice trodden out with bare feet, in great shallow tubs or vats. Yet the plant does not grow its fruit for us at all, unless we help to scatter its seeds.

II. Ask the children to consider how the seeds would be dispersed in the wild grapes. Let each child have a grape to look at, feel the skin, and rub a little of the bloom off. Then let them draw it, and while they do so, cut some open vertically and others transversely, to show the seeds inside. Let them be drawn to show the position of the seeds, pulp and skin, and labelled. The children will then probably suggest that the bright colour and faint pleasant smell perhaps attract birds, who would eat the juicy pulp and the seeds. But the seeds are not digested. They pass through the bird's food-tube and are dropped, perhaps a long way from where they grew. Let the children

add to their drawings a sentence or two of their own, making this explanation. Let them taste the grapes to see what it is the birds like so much. Grapes have a particular kind of sugar known as grape sugar.

III. Give each child a currant and a raisin to find out what they can about them. They will see that the seeds of the raisins are very much like those of the grape, but that the currants usually have none, but are like little raisins, only black. These, too, are small kinds of cultivated grapes, dried for us to use in cakes and puddings.

Fruits which have no stone, as the plum had, but have only a juicy pulp round the seeds, are called berries. So grapes are berries, currants and raisins are grapes, so they are also berries, but the currants are now grown only for our food and have lost their seeds.

IV. Conclusion.—Ask the children to notice in the shop windows any labels which tell us where the currants and raisins come from, e.g. Valencias from Valencia, in Spain. Currants originally came from Corinth, which gave them their name. (These names will mean nothing to the children at present, but later they will make other associations with them.)

VII. HOLLY

POINTS FOR THE TEACHER'S CONSIDERATION

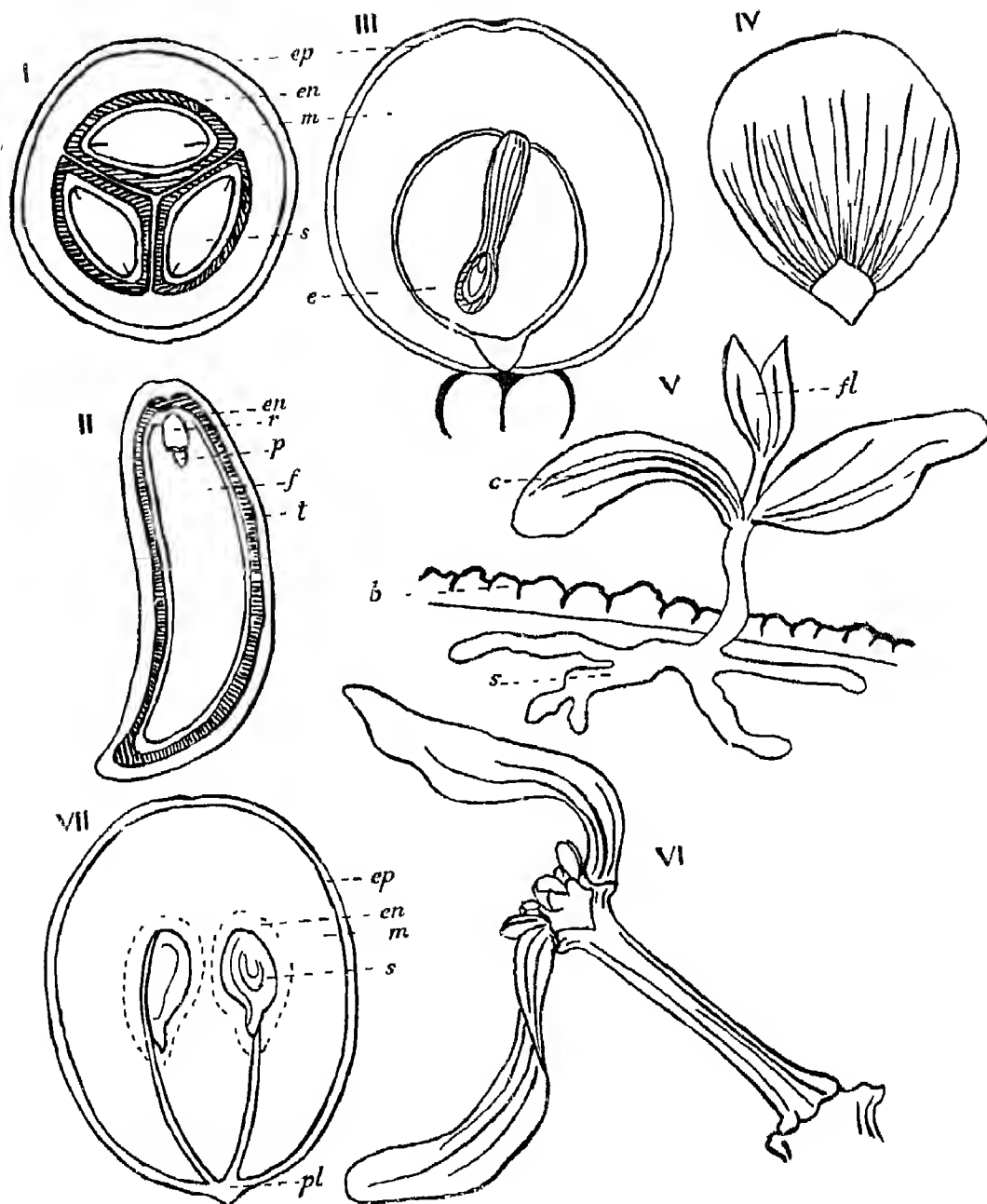
CHIEF stress will be laid on the fruits of the holly, in relation to the series of lessons, but its features as an evergreen may also be taken into account. The fruit is a peculiar kind of drupe, for it has the characteristic hard endocarp, but each seed is separately enclosed, and there are usually four seeds. The endocarp is so hard that it is difficult to split open, but it can be done with a sharp penknife, when a seed will be found inside which resembles the

kernel of a plum stone with a thin brown coat, proving that the "stone" is endocarp and not the seed coat.

THE LESSON

Aim.—To find out all one can about the Holly as a plant which seems in full vigour in the winter, and especially to examine its fruits.

PLATE V



HOLLY I Transverse section of fruit *ep*, epicarp, *m*, mesocarp, *en*, endocarp, *s*, seed II Longitudinal section of seed *en*, endocarp, *t*, testa, *f*, food for young plant, *p*, plumule, *r*, radicle
 MISTLETOE III Longitudinal section of berry *e*, embryo IV Seed, front view V Seedling *fl*, first foliage leaves, *c*, cotyledons, *s*, suckers, *b*, bark VI One year's growth of mistletoe
 GRAPE VII Vertical section of grape *ep*, epicarp, *pl*, placenta, *m*, mesocarp; *s*, seeds, *en*, succulent endocarp

Material.—Small branches of holly berries. A few cut open and the seeds extracted, in a saucer. Seedlings A hand lens Needles

Introduction.—The Holly is a tree which we notice particularly about Christmas time, because usually its leaves are glossy and fresh, and its berries bright and smooth, long after most of the fruits the birds love have either been eaten or shrivelled up. What do we call trees that keep their leaves all through the winter? (Evergreens)

I. Let us see if these evergreen leaves are different in any way from those that fall in the autumn. Give each child one leaf to feel. Probably they will first notice the spines. They will find that it is both smoother and harder than leaves like the beech or others they know. Ask if they know any other leaves that are so hard and smooth. (Laurel, Rhododendron, Ivy) These also are evergreens. We know that trees take water out of the soil. But in the winter the soil is so cold (not frozen) that the roots find it difficult to get any water—it is too cold for them to work properly. So they must not let any of the water that is in the tree dry up. The evergreen trees which keep their leaves, have them covered with a very hard, tough skin, which does not let the water through, and therefore the leaves are able to remain through even very cold winters. That is why they feel so hard.

Sometimes, if we have heavy snow, though that is not often, the snow might lie on the leaves and break the branches. Ask if the children can see anything that would help the leaves to get rid of the snow. Some people say that the little slopes between the spines act like slides, so that the snow slips off them.

Perhaps the hard skin of the leaf prevents it from being injured by rain.

II. Revise these three points. But the most important is the first.

III. Now look at the fruits. They grow either singly or together in clusters of two,

to five. Would they attract birds? Are there any signs of birds having pecked at them? How could we try to find out whether birds like to eat them? (If there is a bird table, small branches could be hung from little hooks round the rim. Or they could be hung from the branch of a tree. Mistle thrushes and redwings are very fond of them.)

Let each child scrape off the thin red skin with a needle. Underneath is a thin, rather fibrous or pithy white pulp, and beneath this they will feel a stone. So it seems to be like a tiny plum. Scrape the pulp away. The stone can then be separated, and it will be found that there are really four, fitted together by two flat sides but rounded on the outside. Can we tell whether these are "stones" or seeds? (If they are stones, there will be a seed inside, with a seed coat, but if they are seeds, this hard part will be the coat and there will not be another.) It will be too difficult for the children to remove the "stone," so they will have to be shown those already prepared. (Black-board diagram) The children can be given the chance of looking more carefully at the stones with a hand lens after the lesson at odd times. So, though this is always called a Holly berry, it is really more like a little plum, for true berries have no "stones" round their seeds.

Are the seeds ever scattered and do they grow into new trees? We think the birds probably eat them, but we cannot be sure until we have watched. They certainly grow. Show seedlings. (It is not difficult to obtain seedlings from any undisturbed copse where there are Holly trees. They are often at least 5 or 6 yards from the nearest tree.) Plant the seedlings in pots of soil to see if they will grow in the class room. Date and measure them, and record the height.

IV. Further work.—Watch what happens to the berries hung out, to those on any trees in the neighbourhood, and to the seedlings.

VIII. MISTLETOE

POINTS FOR THE TEACHER'S CONSIDERATION

MISTLETOE is an evergreen plant which, though able to make some food for itself through its green leaves, is parasitic on trees. Although it is traditionally associated with the Oak, it is much more commonly found on Apple, Elm, Black Poplar, and other trees. It grows very slowly, from seed produced by flowers pollinated in the autumn but not fertilised till the following spring and only matured in the following November or December; that is, it takes about fifteen months for the flowers to form ripe seeds. Germination is also slow. For instance, where five seeds were artificially inserted into slits made with a knife in the bark of an apple tree, five years later two tiny plants appeared, each having two leaves.

The fruit is a berry, containing one seed only, covered by a viscid pulp, and a thin skin. When it is crushed, the slimy contents, after a few minutes' exposure, harden into a sticky glue-like substance, which is not easily detachable from any surface, as if pulled it draws out into long, fine threads. This is the birdlime used by snarers to catch small birds. It is smeared on twigs, and when birds alight the birdlime entangles their feet in its mesh like a spider's web.

The berry is said to be particularly attractive to thrushes. The seeds are either swallowed and possibly deposited on the bark of trees, or scraped off the beak. It is said they can also fall and germinate on the tree where the plant grows. Thus the sticky pulp serves to glue the seeds to the tree. The seed is hard, flat and white with dark green and black streaks.

When germination takes place, what appears to be a root emerges. This is, however, the intermediate axis which joins the root, stem and seed leaves together,

called the *hypocotyl*. At the free end it begins to broaden out into a root-like sucker, which finds its way into the crevices of the bark, forces its way between the bark and the wood, then sends branches into the wood itself, to feed on the sap of the tree. In the meantime two seed leaves pull their way out of the seed coat and uncurl (rather like the sycamore). Between them is a tiny bud which starts the growth of a short main stem. Then it stops, and growth is continued by axillary buds.

From each bud is produced a stem, a pair of minute scale leaves, a pair of long narrow foliage leaves, and either one or a cluster of 3-5 flowers. These flowers are of two kinds, stamen-bearing or *staminate* on one plant, and ovary-bearing or *pistillate* on another, so that on some trees one sees plants which never can bear any berries. Wind pollination takes place, and the white berries are formed. The flowers terminate the main axis, and further growth takes place from a small axillary bud at each side, giving the characteristic forked appearance of the branches. Five or six such buds may appear. It takes a year to produce each internode and pair of leaves from the preceding joint or node.

THE LESSON

Aim.—To examine the Mistletoe, and to learn something of its curious life story.

Material.—Bunch of mistletoe, enough to give a small spray with berries to each child. Needles.

Introduction.—Mistletoe is being shown in the shops for Christmas decorations, and long before there was any Christmas, our

ancestors in ancient Britain used it in connection with their religion. It is a plant that has always attracted curiosity and interest because of the way it grows, and because, like the holly, it produces its pale berries when most of the others have gone. It grows high up on the branches of trees, on apple trees very often, sometimes on oak, and instead of having true roots which go into the ground to bring it water and food, it sends suckers into the wood of the tree to suck up the sap to feed it. So in time it injures and even kills the tree. The tree shows that it is injured by forming swellings where the mistletoe grows.

I. Show the bunch of mistletoe, hanging in an unusual position, and ask the children to notice how it grows. It has only a very short main stem, and then it begins to branch. It appears always to branch into two, and in the fork of the branch is a berry, or a cluster.

Give the children sprays and let them verify this. Let them describe the leaves and the berries. Ask if they notice anything just below each leaf. (A tiny ridge.) These are the tiny scale leaves which protected the bud before it opened. One bud is formed each year on each branch. Find out by observing and counting, how old their particular sprig is. Use a blackboard diagram to help them. Then with the whole class find out how old a large branch is, as nearly as you can. It may have taken ten years for the bunch to grow, so its growth is very slow. Tell them of the five seedlings, and if it is possible, suggest planting some in an old tree (though the children will not see any result that year, they should see some result while in the school). In later years, the children may be told what has been done, so that they may watch for the little plants. (It is best to insert the seed in a natural crevice with a penknife, and cover the spot with a small piece of fine wire netting tacked on, to mark and guard it.)

II. With a needle, let the children prick the berry and squeeze it. Press the contents

on to a piece of paper. Extract the seed and look at it. (Blackboard diagram) Notice its shape, marking, and hardness. Show by blackboard diagram the little plant it contains inside it. (Plate V.) How does the seed get planted? The children may suggest (1) that it drops on to a branch, (2) that birds carry it away and leave it on the branch. Turn attention to the pulp that has been pressed on to the paper. Let the children touch it and notice what has happened. It has hardened, and it comes away on their fingers in sticky threads that cannot easily be removed. Tell them about its use as birdlime. Ask how it is likely to be useful to the berry.

They will see that (1) a bird (e.g. a thrush) in attempting to get rid of it, will brush the seed on to a tree, (2) that if it passes through a bird's body and is dropped, or merely drops from the tree, any trace left of the sticky slime will glue it on to where it falls.

III. Show a picture of the little plant growing on a tree, with its suckers in the wood and its two seed leaves opening, and the stem which will branch to form the bushy plant.

IV. Summary: Heading: How the mistletoe grows.

- (1) The berries are liked by thrushes and other birds.
- (2) The seeds are dropped or brushed off the birds' beaks on to a branch.
- (3) The pulp is like glue. It hardens and sticks the seed on to the tree.
- (4) The seed grows. It sends suckers into the wood and feeds on sap.
- (5) Each branch grows only one joint longer each year. Each joint has two leaves and some berries.
- (6) A bud is covered by two little scales.

V. Let the children draw a year's growth of one twig, and show the joint or *node* (give the name), the stem, two leaves, position of scale leaves and berries.

IX. THE HYACINTH

POINTS FOR THE TEACHER'S CONSIDERATION

THE Hyacinth is a good example of a bulbous plant to start with, because it is large and has a simple type of flower

A bulb is a special kind of underground bud capable of carrying on the growth of the plant as the original stock dies down. It stores food material in the bases of leaves. In many cases it can become detached from the parent stem

A stem is an organ which bears leaves. It starts in the embryo plant as an upward growth whose tip grows towards the light and away from the earth, thus being brought above the soil. The tip of the stem is called its growing point. From it leaves are formed, in a definite arrangement. As these expand, the growth of the stem between them separates them and places them farther back, while the growing point itself forms successive new leaves, so that it is always surrounded and concealed by them. The growing point, together with the leaves just formed, is called a bud. Besides the tip, the tissue immediately above where a leaf joins a stem is capable of forming buds, called *axillary buds* because they lie in the *axil* or groove between leaf and stem.

In the late summer growth is slow, so that the space between one leaf and the next is short, and the bases overlap one another. In the formation of winter buds it happens in many trees, e.g. Horse Chestnut, that the last-formed leaves do not expand into leaf blades, but consist merely of woody scales, the leaf bases, enclosing the bud in a protective covering

A bulb is a bud protected in a similar way by leaf bases, only in this case they are the bases of the foliage leaves, whose green limb (thought now to be an extension of the base and not a true blade) has withered

and broken off after its work was done, together in most cases with one or more sheathing bases which do not produce a green part. In a Hyacinth bulb a dark, scarred rim indicates which scale leaves are the bases of green leaves

The best preparation a teacher can make is to dissect a bulb which has not been planted, and a bulb at the end of its flowering time, leaf by leaf, cutting each one cleanly away from the stem, and noticing at the same time exactly its position. Mark by two cuts in the base the position of the edges of the first leaf removed, for reference. It is a help to clear understanding to make a sketch of what is left after removing each leaf. In addition it is a good plan to cut across a bulb, and then loosen each leaf in turn from the lower half, noticing on the cut surface exactly how they overlap. An ink line bisecting the surface is a help.

It will then be seen, as illustrated on Plate VII., that the leaves, in a bulb which has not been planted, fall into four groups:

- (1) On the outside are one or more thin, dry scales, still remaining fleshy in places. These may not reach quite to the top. Their edges are so closely pressed down that at first they seem adherent to the leaves below. These are old leaf bases.
- (2) Inside these is a series of four to seven white, fleshy leaves. They are much thicker than the first series, especially the inner ones which towards the base may reach $\frac{1}{4}$ inch in thickness, being thinner at the edges, and where they join the stem. It is these that form the chief bulk of the

bulb, by storing food material for the new year's growth

- (3) Next is formed a series of three sheaths, the two outer either tapering to a shrivelled brown tip, or showing a thin, colourless tip veined like a short foliage leaf, followed by several leaf bases showing the withered remnant of green leaves. These enclose the bud. The outer ones are as thick as the last series
- (4) The bud, ready for this year's growth, consists of a series of four or more slim, tubular-pointed white leaves, each apparently completely enclosed in the one outside it. They range from $1\frac{1}{2}$ to $\frac{1}{4}$ inches long. Finally, if the bulb is a good one, we find the flower. A thin, strap-shaped remnant of last year's flower may be found immediately outside the bud, showing that it is usual for the new bud to take the position of the flower in the centre

Tracing the history of the bulb backwards, and guided by this year's bud, it can be seen that each year about the same number of leaves has been formed, together with three sheathing leaves, which do not, however, emerge from the bulb as in the Daffodil or Crocus

Last year's group, the bases of the leaves developed last spring, are beginning to store food material, the outer ones having reached the thickness of those formed the previous year. Thus the chief source of food for growth this year will be the inner leaf bases of *two years ago* and the outer ones of *last year*. These will be exhausted and reduced in their turn to the scaly condition of the outermost series, all that is left of the leaves of *three years ago*

In the Snowdrop bulb, the interpretation of the structures found can be much more accurate, because each year sheathing leaves are formed first, of a different shape from

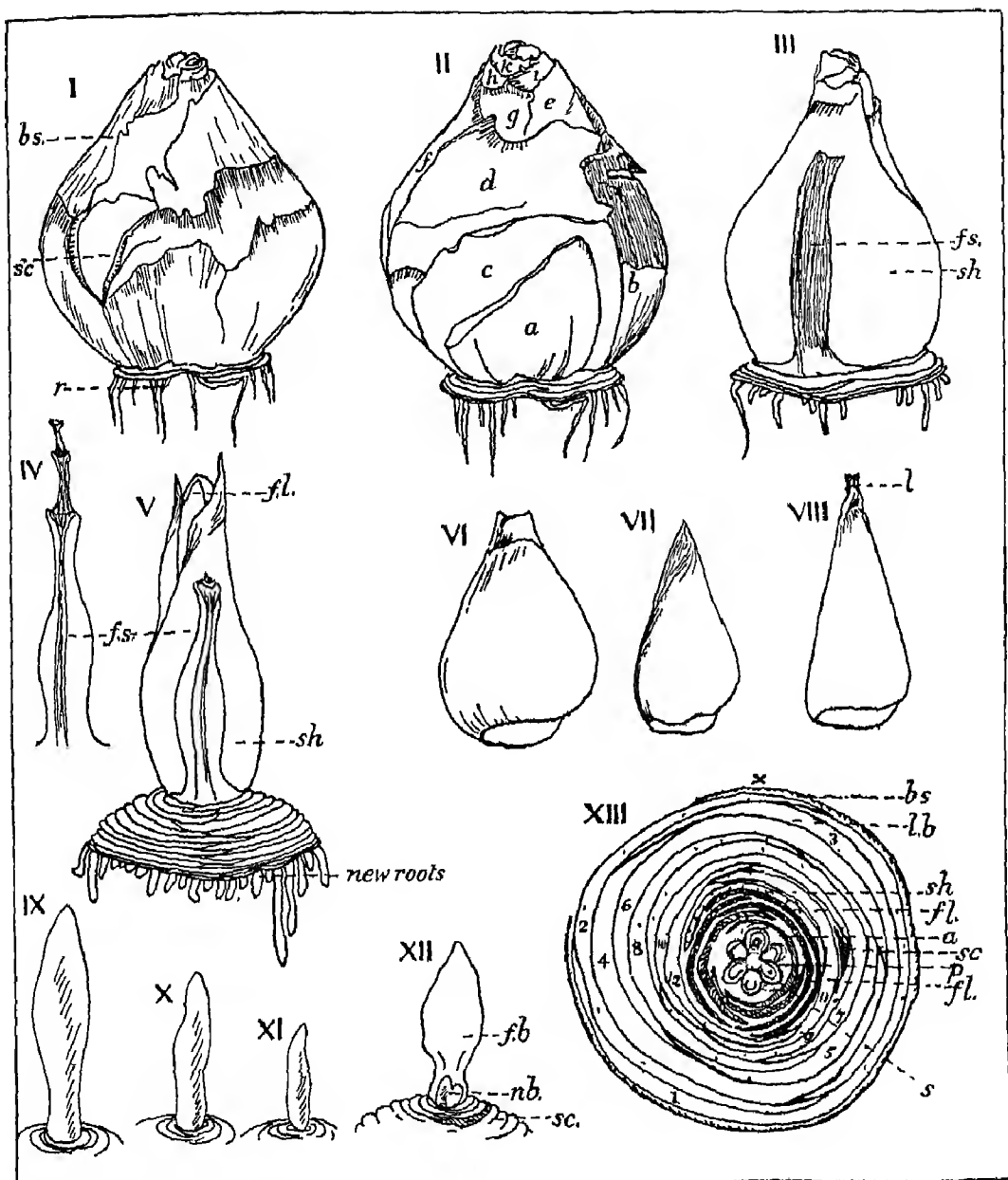
the foliage leaves, so that they separate the groups from one another. The foliage leaves, too, are limited to two or three. The study of a Snowdrop bulb offers a very good exercise for older children, say 10-11, and is fully described in "The Study of a Snowdrop Bulb," by Miss L. E. Cox, published as a School Nature Study Union leaflet. The Hyacinth, from its size, is more suitable for a first example. In the Hyacinth the appearance of the tips of the scales, and the tendency to form about the same number of leaves each year, is a guide to the structures involved

When the scale leaves which cover the bulb have all been removed, the stem should be examined. It will be seen to consist of a round disc about $\frac{1}{2}$ inch thick, with a diameter of $1-1\frac{1}{2}$ inches. It is hard and solid. From its lower edge a number of short old roots grow in three or four rings, leaving a bare central patch underneath. Where each scale leaf has been removed a semi-circular scar or ridge is left. Immediately below the first of these may be found a circle of tiny round projections, a new series of roots ready to take the place of the exhausted old ones

Notice the resemblance of the denuded stem to the corm (so-called bulb) of a Crocus. The difference in appearance between a Crocus corm and a Hyacinth bulb is due to the fleshy character of the scale leaves in the Hyacinth, while in the Crocus food is stored only in the stem itself. The leaf scars in the bulb illustrated show that last year's leaves are attached to the flat upper surface, while the older ones are on the sides, at a lower level

Notice that at the apex of the stem is the flower bud, which therefore terminates the main axis, and so is a terminal bud. Since, with the formation of the fruit, the growth ends, a new axis must take the place of the old one each year, that is to say, an axillary bud must form the new bulb. Examine the stem carefully for any signs of a bud. Then cut a bulb through vertically and look between the bases of the leaves. In the

PLATE VI



HYACINTH BULB I. External view of bulb *sc*, scale splitting, *bs*, brown scales formed 3 years ago, *r*, old roots II Bulb, showing scales overlapping III Bulb showing remains of flower stalk (*fs*) formed 2 years ago *sh*, sheaths of 1 year ago, surrounding the foliage leaves of last year IV. Remains of flower stalk of last year V Sheaths and leaf bases of last year removed to show remains of flower stalk (*fs*) *sh*, sheaths; *fl*, foliage leaves of this year VI, VII Two of three sheaths which surround last year's foliage leaf VIII. A base of a foliage leaf—withered edge (*l*) IX, X, XI. This year's foliage leaves XII Flower bud (*fb*) *sc*, scar left by flower stalk of previous year, *nb*, new bud XIII Transverse section of bulb to show fleshy leaf scales overlapping *bs*, brown scale, *lb*, leaf bases, *sh*, sheaths, *fl*, foliage leaves, *sc*, scar left by flower stalk, *s*, stem, *p*, perianth; *a*, anther

bulbs examined for the purpose of this article, buds, all *potential* bulbs, were found

- (1) between the scaly outer leaves and outermost fleshy leaf,
- (2) between the outer leaf bases of last year's growth,
- (3) immediately outside the foliage leaves of a bulb which had just flowered,
- (4) close up to the flower stalk, between it and the innermost leaf

It will be observed that all these are therefore axillary buds. From the position of the remains of last year's flower, already noticed, it will be inferred that the new bulb is usually formed from a bud near the centre, and close to the flower which has just bloomed. Pressing aside the old flower stalk, it forms a new main axis which carries on the life of the plant.

If a bulb is planted over water and kept in a dark place, the ring of new roots will begin to grow, and above them, other rows. These will continue, straight and unbranched, until they have reached the bottom of the glass, possibly, before any signs of leaves appear. Then it will be noticed that the scales covering the apex of the bulb are being pressed slowly apart, and between them can be seen a small yellowish growth, which in a day or two reaches the rim of the scales. It becomes greener, until in a few days it has emerged as a strong, bluntly pointed, dark green bud, consisting of several leaves tightly folded one inside the other. It grows slowly and steadily, a week or more may pass before there is any loosening of the leaves. Then they begin to separate, and it will be seen that each is deeply hollowed out on the inner surface, while the tip forms a little hood. As has been seen in the bulb, the immature leaves are surrounded by the three sheaths and have to force their way through them to get out. The growth of the inner leaves causes each of the outer ones in turn to unfold, one edge of each leaf generally fitting into the curve of the one outside it. In a sturdy plant the

leaves will grow to a length of 6 to 8 inches before the flowers open, and may be 1-1½ inches in breadth at the base. The leaf is thick and holds a good deal of liquid, if it is bruised this will be found to ooze out as a fairly dense sap. An ample water supply is therefore essential, and the roots must be well-grown so that they can obtain it, before the leaves and flowers grow. Since the flower head is heavy, the strongly developed roots are also needed to fix it firmly in soil. The leaves draw up water along straight, parallel veins, converging towards the tip, which form distinct, fine ridges on the outer surface.

Presently, the flower head, or *inflorescence*, begins to appear, as a cluster of tiny balls, forcing its way out between the leaves. It may be white, pale green, or already tinged with darker colour if the flower is a deeply coloured one. It grows very slowly, keeping pace with the leaves, for it has to wait until the roots and the leaves together can provide it with sufficient food to nourish it, but if at this stage one is cut open, it will be found to contain already its essential parts, the stamens which bear the pollen and the ovary, although the flower leaves are not yet distinguishable. As the stalk grows, and the upper part elongates, the flowers are separated from one another, and then one by one, from the lowest upwards, the beautiful bells open, becoming more deeply suffused with colour, or a purer white, as they unfold. Warm sunshine stimulates the pumping process by which leaves, stalks and flowers receive the water which distends them to their full size. The stalk goes on growing both in length and thickness until every flower is expanded.

The flowers are arranged in five rows in a clockwise ascending spiral. This can be seen by taking a piece of fine string and winding it round the stem above each flower in turn. The individual flowers are borne on short stalks of their own colour, each bent slightly downwards by the weight of the flower. Immediately below each flower stalk is a tiny white or coloured leaf. A leaf formed below

Figure 1 consists of eight line drawings, labeled I through VIII, illustrating the development of a plant structure, likely a flower or fruit, from various angles and stages. The drawings are arranged in three rows: I, II, and III in the top row; IV, V, and VI in the middle row; and VII and VIII in the bottom row. Each drawing includes specific labels indicating anatomical features:

- I:** Lateral view of a rounded structure. Labels: *asc* (anther sac), *nr* (narrower part).
- II:** Lateral view of a rounded structure. Label: *fb* (filament base).
- III:** Longitudinal section of a pointed structure.
- IV:** Longitudinal section of a pointed structure. Labels: *b* (base), *sh* (sheath), *rf* (receptacle).
- V:** Longitudinal section of a pointed structure. Labels: *fb* (filament base), *fl* (filament), *sc* (sac), *nr* (narrower part).
- VI:** Longitudinal section of a rounded structure. Labels: *p* (pistil), *st* (stamen), *sq* (sac), *n* (narrower part), *nc* (narrower part), *o* (ovary).
- VII:** Longitudinal section of a rounded structure. Labels: *bs* (base), *fs* (filament sac), *fl* (filament), *s12* (sac 12), *fl123456* (filament 123456), *s789* (sac 789), *pa* (pistil), *ov* (ovary), *fl1011* (filament 1011), *s* (sac), *r* (receptacle).
- VIII:** Longitudinal section of a rounded structure. Labels: *fs* (filament sac), *f* (filament), *nb* (narrower part).

BULB I Brown scales removed, *ax*, axillary buds, *nr*, new roots II Fleshy bases formed last year (*fb*) III Sheath.
IV Remains of flower (*rf*) *sh*, sheath, *b*, bud V Flower bud (*fb*) *fl*, foliage leaf, *sc*, scars of leaf bases *nr*, new roots
VI Ovary (*o*) *n*, nectaries, *sf*, style, *sg*, stigma, *nc*, nectar VII Vertical section *s*, stem, *p*, perianth, *a*, anther,
ov, ovary, *fl*, foliage leaves, *fs*, flower stalk, *s* 1, 2, sheaths, *fl* 1 2 3 4 5 6, foliage leaves of last year, 1 7 8 9, sheaths which
surrounded last year's foliage leaves, *fl* 10 11, leaf bases formed 2 years ago, *r*, root, *bs*, brown scales VIII Vertical
section of bulb after flowering *nb*, new bud, *fs*, this year's leaves, *fs*, flower stalk

a flower is called a *bract*. The flower itself is a bell of six narrow, pointed floral leaves, joined about half their length to form a tube protecting the essential parts, with their free ends curved backwards. These leaves are arranged in two rows. They are not called petals, when all are alike, but *perianth leaves*. The tube is swollen at the base, then narrows to form a short neck.

Take off one flower, with its bract, and examine it in detail. Hold the flower with the bract towards you and examine the outer ring (or *whorl*) of perianth leaves. The bract lies exactly opposite to the lowest leaf of the outer row, and between the two lower leaves of the inner row, which alternate with the outer row.

With a sharp penknife cut the flower tube open through the middle of the lowest perianth leaf. At the mouth of the tube are six stamens, or pollen containers, each attached to one of the perianth leaves by a very short stalk just above the base. Each can be seen to consist of two lobes opening inwards towards the tube. They are covered with fine yellow pollen. Each grain of this pollen contains, embedded in its substance, two minute bodies called the *reproductive nuclei*. These must be conveyed to the ovules, and brought into contact with the egg inside them, before a new plant can grow. One of the nuclei fuses with the egg to form the embryo plant, the other unites with a second nucleus in the ovule, and produces the food material contained in the seed, which enables it to grow.

The ovary lies in the swollen part of the flower tube. It is round, and produced into a short thick stalk, the *style*, ending in three tiny ridges which together form the *stigma*, or surface upon which pollen is deposited. It is the remains of the style and stigma that we have noticed in the developing Snapdragon and other fruits. The stigma, style and ovary together constitute the *pistil*. As soon as pollen grains are deposited on the stigma, they begin to grow, and absorbing food and water from the stigma,

each sends a little tube down the style to the ovary, where it enters an ovule. The two reproductive nuclei then make their way down this tube to the egg and food-producing nuclei of the ovule.

If the ovary is cut open lengthwise, it will be seen that a main axis or rod runs through it, which is continuous with the style and stigma. It is through this that the reproductive nuclei reach the ovules, which can be seen attached to it by minute stalks. This place of attachment is called the *placenta*. If an ovary is cut across, it will be seen that there are three chambers, each containing ovules attached to the central placenta.

The majority of bulbs are found in the case of spring-flowering plants. Their value is that, by supplying the plant with a concentrated supply of food from their reserve, they enable it to grow and flower rapidly, so that pollination and fruit formation can take place before it is overshadowed by foliage or choked by undergrowth.

THE LESSON

Four periods might be taken, one about the beginning of October for planting bulbs, a second on the plant before flowering, one on the flower and one on the bulb. Between the lessons the children should have opportunities, in small groups and individually, of noticing the stages in growth and development. The detailed study of the flower would be better taken from the Bluebell or Wild Hyacinth, when the flower is withering and the fruits are forming.

I. Planting. Materials.—To a class of forty children at least four bulbs, having differently coloured flowers, two to be planted in a hyacinth jar over water, two in 5-inch pots of soil. Small broken crocks for drainage, saucers to hold the pots, water and clean rags for washing pots. Damped soil for planting.

Tell the children what the bulbs are, and that if we plant them now they will flower

in the spring. We are going to plant two in pots of soil.

Let several children wash and dry the pots, saucers and crocks. If the pots have previously been used they should be scrubbed. In the meantime, explain by a blackboard diagram how the bulbs will be planted (see diag.) Other children can then place the crocks and soil in position, the crocks to a depth of 2 inches, about 1 inch of soil well pressed down, then the bulb, which should be packed round with soil, firmly pressed down with a thick, blunt stick, and covered to a depth of $\frac{1}{2}$ inch.

Explain that bulbs would naturally grow in soil like any other plants, but in order that we can watch them grow, and especially the roots, we are going to plant some in clear glasses. Let two children wash the glasses to make sure they are quite clean, others fill them with water to within $\frac{1}{2}$ inch of the neck, and others place the bulbs in position. A piece of charcoal in the water helps to keep it sweet. Explain that if the bulb actually touched the water it would begin to soften and go mouldy, so we have a little space, but some of the water evaporates and keeps the air in it damp. Point out the old and new roots, if the new ones show. Mark the level of water with a narrow strip of paper.

Other children may prepare labels on which the name and colour are printed, and the date. These are attached and the plants are then put away. It is explained that if we are to have healthy plants, it is best for strong roots to grow first, and that they grow better in a dark place. When we plant bulbs in the garden we put their own depth of soil over them and this keeps them dark. If there are plenty of bulbs, one in a pot and one in a jar might be kept on the window ledge for comparison.

An airy, dark cupboard will do for the bulbs in glasses. Those in pots grow best if placed in a bed of ashes and covered to a depth of several inches, but any cool, dark place will serve. Water well first, and if not buried, keep the soil well damped but drained.

II. Prepare a large sheet of drawing paper by dividing it into three columns, for observations of the growth. In the three columns note the date, the growth of the root, and the growth of the "shoot" (leaves and flowers). Each week the bulbs in glasses should be brought out and looked at, and any change entered. The length of the roots can be judged approximately, the "shoot" can be measured with a ruler. Or squared paper can be used, a line drawn horizontally across the middle, and the length of the roots and shoot indicated diagrammatically each week, each square measuring or representing 4 in. (Plate VIII.)

When the roots are well established the bulbs can be brought into the light. Opportunities should be made in arranging the Nature Study lessons, for the children in turn to make drawings showing the stages in their growth. Small groups can sit on the floor to draw them if there are no tables and the desks are not convenient to move.

When the leaves are well-grown and the flower is appearing, a second class lesson might be taken.

Material.—The children would have their own drawings, and the class record would be placed where everyone could see it. All the bulbs would be on the teacher's table.

Aim.—To recapitulate the stages of growth, and draw attention to the value of the plant's structures.

III. Introduction.—Say that now we have watched our Hyacinth bulbs grow from the beginning, we will try to put together the chief things we have noticed.

IV. Ask what happened first. Refer to the chart and to the children's drawings. Pick out and underline any new events. Make a blackboard summary, putting the date beside each event, and then noting how long each stage took, thus.

- (1) Date. Roots began to appear.
- (2) Date. * Roots had reached bottom of glass.
- (3) Date. Shoot, pale green.
- (4) Date. Shoot had turned dark green
- (5) Date. Leaves began to open
- (6) Date. Flower could just be seen.
- (7) Date. Colour of flower could be seen
- (8) Date. Flower stalk could be seen
- (9) Date. Lowest flower began to open.

The bulbs would naturally vary in the time taken

V. Questions.—Do you think it is a good thing for the plant to have its roots first? Why? How do we know that the roots take up water? Can we prove it? (Note any change of level in the water in the jar, which was marked.) We noticed that the leaves grew next, and the flower grew only very slowly. The flower cannot grow unless the leaves grow first, because the leaves as well as the roots feed the plant, but I cannot explain to you how they do it until you are older. Could we find out whether the leaves take up water as well as the roots? The children will probably suggest the same way as for the roots, i.e. by putting some leaves in water, marking the level and noticing whether there is any change, and it should therefore be tried, but a better and quicker result may be obtained by cutting off one of the leaves and placing it in red ink, which in a day will have penetrated all the veins and coloured the leaf. The same thing can be done with a white narcissus, white hyacinth or other white flower. Tell the children that the water is really forced up the plant, and by filling the leaves, stems and roots, enables them to swell out and so grow.

VI. Now notice the leaves. Let the children describe them, and the way they grew. Draw attention especially to their smoothness (except for the fine ridges of the veins) and long narrow shape, and remind them how, at first, they closed over

and protected the flower from rain. The narrow hooded shape enables the rain to run down them direct to the roots, not *inside* the leaves but *outside*, and so the water goes where it is wanted. They are strong and not easily beaten down or injured by heavy rain. Compare them with the daffodil leaves (show if possible) and notice that here, in addition to the similar long shape, there is a bloom something like that on the plum. How would it be useful? (In helping to throw the water off, just in the same way.)

VII. Recapitulate these points by questions

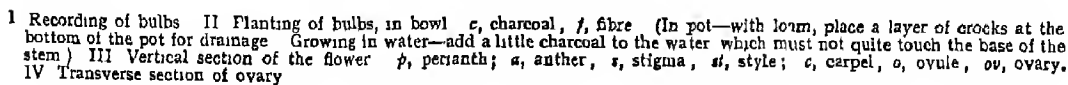
The third period would be given to the flower, just as it is beginning to wither.

Material.—The pots of flowers already examined by the children, their sketches and wall sheet

VIII. Introduction.—The aim, to put together all we have noticed about the flowers, would be made clear. The chart would be consulted, to see when the flower first made its appearance, and what stages it had passed through before it was fully open

IX. Ask the children what purpose a flower serves to the plant. Count the flowers on each head and see how many there are. Mention other flowers with many on one stalk, e.g. Snapdragon, Bluebell, Cowslip. Explain that most flowers growing out of doors (as the Wild Hyacinths or Bluebells do) need to be visited by insects before they can ripen their seeds. Recall that, when drawing the flowers, the children could see a bunch of tiny yellow things closing in the tube of the flower. Pass the pots quickly round so that they can be looked at again. These are called stamens, and they contain a fine powder called pollen. Remind the children of the ovary of the Snapdragon with its little ovules. These ovules can ripen into seeds only if the

2



pollen is brought to them, and it is better if it comes from another flower. Now many insects, especially flies and bees, feed on pollen. If an insect comes to a flower for pollen, it is likely that it will brush some off and carry it to another flower, and then the seeds can grow. So flowers which need insects to visit them and bring them pollen, usually have some way of attracting the insects, that is, of showing them that they have something good there. Now can you see why it is useful to the plant to have its flowers crowded together on a head? (Because many flowers clustered together are more easily seen than scattered flowers.) Summarise this explanation on the blackboard, letting the children help to frame it.

Continue the explanation. Many insects, especially long-tongued insects like bees, moths and butterflies, are very fond of sweet juices. Some flowers make a sweet juice called *nectar* which attracts them, and in coming for the nectar (which bees can make into honey) they may also bring pollen or carry it away.

Cut open several flowers by a vertical slit down one side, to show the children the three drops of clear nectar which can be seen on the ovary, just at the base of the style. These will be best seen in fresh flowers which have been bathed in sunlight for some time, and there may be no nectar under other conditions. Usually it is better to avoid destroying living flowers or plants, but in this case, with plenty of bells, one can be taken from each plant without spoiling the inflorescence seriously. Pin each flower on a cork mat. The children can then see the ovary, the stamens, and pollen on the surface of the stamens and lying in the bottom of the flower tube. Add the chief points to the blackboard summary.

Ask the children if they can think of any other way in which the Hyacinth may attract insects. They will probably mention the smell and the bright colour. Ask if they have noticed at what time of day Hyacinths smell sweetest, and tell them that flowers that smell in the evening, especially

pale coloured or white flowers, are usually visited by moths. Hyacinths growing out of doors would flower rather later, when there would be night-flying moths.

X. Blackboard summary, formulated at the points indicated by selecting the best suggestions made by the children, somewhat as follows:

The Hyacinth flower.

Many flowers together attract insects.

Some insects eat pollen. They may carry it to other flowers.

The Hyacinth has nectar for insects, probably moths.

The children might copy this summary.

In the fourth period the bulb would be examined after flowering.

Aim.—To see what a bulb is like inside, and how the plant grows from it.

Material.—The bulbs. An onion.

XI. The plan of the lesson would depend on how many bulbs were available. If there were any to spare, some of the more responsible children might examine them for themselves, either before or after a group lesson, using blunt-ended scissors for easing and cutting away the covering leaves. In any case, the examination of a bulb should be taken with a group of not more than ten children at a time, the rest being occupied with drawing or writing in connection with growing seedlings, goldfish or other nature studies which are going on.

A section of ten children might be grouped either in a block of desks or in a ring, sitting round a low blackboard, so that they can all follow the teacher's dissection. The external appearance of the bulb would be noted, the three or four rings of new roots surrounding a bare patch, the irregular outer scales of the bulb, and the leaves and flower emerging from between the scales.

The teacher would then tell the children what she was going to do, and why (see Ann). She would remove the covering leaves in turn, and pin them in regular order on the blackboard, or fasten them with some strong gum to a sheet of brown paper. As each group is removed, she would draw the children's attention to their distinctive points, illustrating by blackboard diagrams. Each set might be mounted in a separate row. She would draw the children's attention to the withered tips. Finally she would point out the way in which the foliage leaves wrap round the flower stalk, their white, slightly swollen bases, and their position, surrounding the flower, in the centre of the bulb. If, in removing the leaves, buds are found, their position should be noticed.

Children of this age cannot be expected to deduce for themselves the connection between the leaves and the bulb sheaths, nor can any process of reasoning arrive at the discovery, proved in the laboratory, that the bulb stores food. The children should be told, therefore, that the leaves which have been removed are really the bases of last year's and the previous year's leaves, whose tips have withered away, leaving the brown scar they can see. They should be told that they remain to protect the bud inside from frost and rain, and that they are thickened because food is stored in them which is gradually used up by the growing plant, whose leaves in turn will form the covering and food for a new bulb. The present year's leaves will already be beginning to thicken at the base.

An onion should then be cut vertically

through the middle, so that the bud in the centre can be seen. A diagram of the hyacinth bulb similarly cut to show the flower stalk and the new bulb, may be shown and explained.

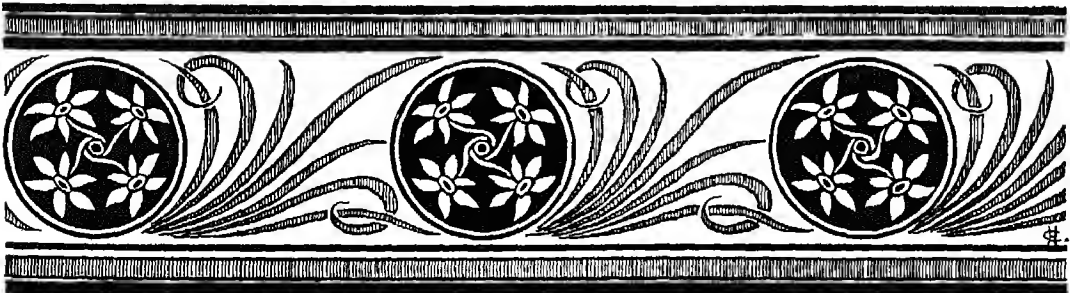
When each group has followed this dissection (probably two in one period), the main points should be recapitulated by constructing a blackboard summary as a result of questions. This can be copied by the whole class.

XII. Blackboard summary.

Hyacinth bulb.

- 1 In the middle of the bulb there is a bud
- 2 It is protected by fleshy and scaly leaf bases, which have been green leaves. They contain food for the bud.
3. A new bud forms near the flower each year, and flowers the next year.

XIII. Further work.—If possible one or more of the bulbs which have flowered should be planted in soil out of doors, so that the children can see that the leaves go on growing for some time. Later, a bulb can again be taken up and examined. It will be seen that the foliage leaves are becoming quite thick at the base. The children can be told that they are growing to make food, and storing it for next year's bulb. Look for thick, wrinkled roots amongst the finer ones. These are called *contractile* roots, and by their power of contraction, under natural conditions, they pull the bulb more firmly down into the soil, a little farther each year.



X. THE GOLDFISH OR GOLDEN CARP



POINTS FOR THE TEACHER'S CONSIDERATION

FISHES belong to the lowest order of true vertebrate animals, that is, animals with an internal skeleton supporting the muscles, which consists primarily of a dorsally placed chain of small bones or *vertebrae*. The body of the Goldfish is somewhat spindle-shaped, forming a wedge which cleaves the water, then narrowing down to the tail end so that any tendency to backward suction which might be caused by the water rushing in, is reduced. The chief swimming movement is made by a powerful sideways stroke of the tail and hinder part of the body, which sends it forward. Corrective movements of the tail fin, and perhaps other fins, prevent it from deviating from the straight course. Gentler movements are brought about by the movements of the front pair of fins, the *pectoral* fins, which row it forwards by pressing backwards, or by "backing water," or pressing forwards, reverse the direction. They are also useful in making upward and downward movements, in steering sideways, as they can move independently, and in balancing while the fish remains still. The upper or dorsal fin, the under or

ventral fin, and the hinder pair, the pelvic fins, make delicate movements which seem to assist the rest. The thin flanges of the tail, too, make slight movements independently of the strong main stroke. The dorsal and ventral fins are concerned with keeping the body "right side up" in the water.

There is evidence that the two pairs of fins found in fish are the forerunners of the two pairs of limbs of all the higher animals. In certain rivers which dry up periodically, leaving only soft mud or shallows, some of the fish use their paired fins for resting upon or shambling through the mud. A Goldfish in shallow water will rest upon the bottom on its front fins.

Breathing in all animals takes place through a thin, moist membrane in contact with the exterior medium, air or water. In vertebrates this membrane is provided with numerous minute blood vessels. The red colouring-matter in the blood, *haemoglobin*, is able to extract oxygen from the air, which is circulated all over the body, where, by assisting in breaking down the tissues, it causes energy to be set free, which can be

used in the form of heat or for movement (*kinetic energy*)

In water animals, oxygen is obtained from the small quantity dissolved in the water. Fishes, which live in running water, are able to obtain a good supply, therefore if they are kept in captivity there should either be some means of aerating the water by forcing air in, or the water should be frequently changed. Green submerged weeds help to supply oxygen.

Breathing takes place through four pairs of much branched membranes supplied with blood vessels, called *gills*, arranged as fringes upon bony arches at the sides of the head where the mouth cavity joins the gullet. Between the arches are curved slits, which pierce the gullet. Water is taken in by the mouth, which closes and forces it over the gill fringes or rays, (which extract the oxygen), then out by the gill slits. The slits are covered by a plate with a semicircular free edge directed backwards, the gill plate or *operculum*. The regular opening and closing of the mouth and operculum is noticeable. The inner edge of each arch is provided with sharp inwardly directed spines, the gill rakes, which act as a sieve to prevent food from passing out by the slits. They direct the food down the gullet.

The fins are supported by finely jointed rods, bound together in bundles and branching out in single rows to the edge. Stretched over these is the fine membrane which, by offering a large resisting surface to the water makes their pressure effective for movement.

The body is covered, except the head and fins, by rounded scales, with their hinder free edges overlapping one another, in a regular arrangement. These scales grow out from the skin, each in a tiny sac, and increase with age, so that concentric layers of growth can be recognised, as in a tree trunk or a snail's shell. The outside is the last formed.

The eyes are nearly flat, placed at the sides of the head level with the surface

There are no eyelids, so that they cannot be closed. There are no external ears, and the internal ears are connected chiefly with control of balance, the part which is the organ of hearing in man has not yet been developed. The sense of smell is very keen, and seems to be the sense chiefly depended upon, though objects close to the fish, especially moving objects, are sighted, and they seem to be quickly sensitive to shadows.

THE LESSON

As it would be impossible to provide all the children in the class with fish to watch, those available had better be divided amongst groups of children, while others are busy with drawings and other records of bulbs and seedlings. If four fish are provided, and the desks are arranged so that three or four children can watch each, a large class can have the opportunity of watching them in two half-hour periods. If more convenient the groups could sit on the floor.

An introductory lesson would deal with the making of homes for the Goldfish. Then during two periods different groups of children could watch them, helped by a slip of questions; finally, a period could be given to a class lesson.

An alternative method would be for the teacher to take a group lesson with each set in turn, directing their observations by questions and discussion, and then letting them make sketches. The first method is better, because it gives the children time and opportunity to make their own observations, to help themselves by drawing and to exercise their judgment in selecting what they will record.

FIRST PERIOD

Aim.—To make homes for four Goldfish

Material.—Two straight-sided enamel bowls not less than 10 inches in diameter by 5-6 inches deep. A dish of sand, ready

washed Some water weed (Canadian pond weed and Starwort are readily obtained and quite good) A bowl of clean water A watering can or large jug of water which has stood overnight. A small jug or cup A little Epsom salts and common salt

Introduction.—Ask the children if they would like to keep some Goldfish, and tell them that they are going to have four, but that it is necessary to make a home for them beforehand. Tell them that most of our Goldfish come originally from China or Japan, where they live in fresh-water ponds and lakes, so that naturally they have plenty of water which is always being changed Therefore we should give them as much space and water as we can. We must try to make a home for them as much like their own as possible

I. Ask the children if they have watched either sticklebacks or minnows (give local names) Let them tell you all they can about the kind of place they are found in and what they do Sometimes they remain in the sun for quite a long time, at other times they dart about among the weeds that give them shelter. The bottom of the pond is muddy or sandy. Then for our Goldfishes' home what sort of conditions ought we to have?

- (1) It should be large enough and deep enough to give them plenty of room.
- (2) It should have mud or sand at the bottom Sand is easier to keep clean.
- (3) It should have water weeds growing in it, for shade and shelter (Largely for aeration, but the children do not know this)

II. Show the children the two bowls, and place them on the table, so that all can see what is done The rest of the material should be conveniently near Show the sand, and explain that it has been washed by pouring water on it and pouring it away several times. The weeds will need

washing Let two children wash them in a pail of water, and two others make them into bunches of about six pieces, tied together at the lower end with cotton. The cotton is then wound round a small stone which is pressed into the sand, and so the weed is fixed and ultimately rooted. Instead of a stone, the stems can be nipped in a doubled strip of lead (2 inches \times $\frac{1}{2}$ inch is large enough).

In the meantime, two other children can be arranging the bed of sand about 1 inch deep in each bowl. Employ as many children in turn as possible. Let others plant the weed, two or three bunches in each bowl. These should be arranged so as not to obscure the view The larger stones are arranged as a little cave to give additional shelter (If the bowl is to stand in the window, it should be protected against too strong sunlight by a paper screen)

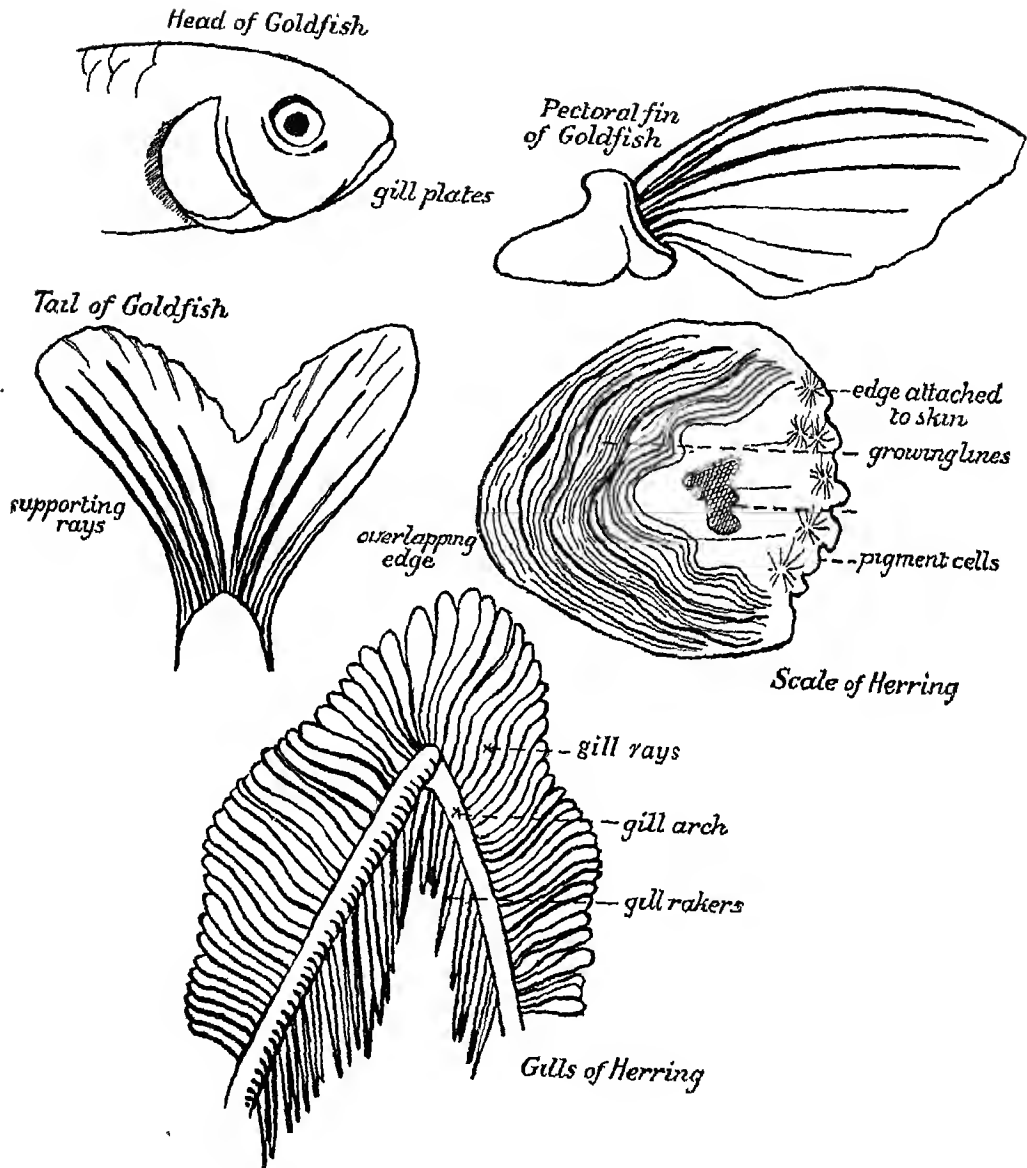
The bowl is then very carefully filled by pouring water from the little jug, letting it break its fall against the side of the dish so as not to disturb the sand If it is not quite clear it can stand until the next day, if fairly coarse sand or gravel is used it does not usually rise It can be cleared by standing the bowl in a sink and allowing water from a tap to trickle slowly in and overflow for some time, then the surplus is removed It should always stand long enough to reach the temperature of the water the fishes have been kept in. A sudden change of temperature may cause a "chill" and render them liable to a fungoid disease

Tell the children that the water in ponds is not quite tasteless like tap water, because it has passed over rocks and through the soil, and dissolved what we call *mineral salts*. These are good for the health of the fish, so many people put in a little Epsom salts, or sometimes ordinary salt to make up for their absence. Add a saltspoonful of each to the water

III. Care of the fish.—Arrange that all the children who wish may look after the fish for a day in turns, and make a list with

SKETCHES FOR THE BLACKBOARD

PLATE IX



dates Then explain what should be done Each day a good deal of the water should be baled out with a small jug, and fresh added, *which was drawn ready the day before.*

The fish can be fed on tiny worms, scraped meat, or ready-prepared fish food or ants' eggs. It is best to give variety, with some fresh food A small pair of forceps or scissors is best for giving them the meat, which should be snipped off and fed to them individually by dropping tiny pieces ($\frac{1}{4}$ inch) in front of them. Never leave any uneaten food in the bowl, or it will attract a fungus which may kill the fish A small muslin net on a cane or galvanised wire frame should be made for skimming the surface, or a little sieve can be bought

Once a week the fish should be put in another vessel while the bowls are drained, their sides sponged, and they are refilled (This is best done by the teacher) If a tap and some rubber tubing are available this can be done by siphoning without disturbing either the fish or the bottom An occasional brine bath is good, especially if the fish show signs of lassitude or lose the brightness of colour Any fish attacked by fungus should be isolated. Brine baths may cure it

IV. Summarise the main points in the care of the fish.

V. Record.—The children can draw the "home" to show how it is arranged, labelling the contents This may be done in a subsequent period while other children are studying the fish.

In the next two periods, each group in turn, after having a minute or two to watch the fish, would be given the following list of questions, the second part only being written as a record

- (1) Notice all the different movements the fish makes How does it swim forwards? sideways? up and down? Can it swim backwards? What other movements does it make? Tap the glass Do you think it

can hear? Wave your hand over the top. What happens? Drop a tiny bit of food just in front of it. Does it seem to see? What happens when you touch it very gently with your pencil? (Touch head, body and tail, once only)

- (2) Make a drawing to show all the parts of the fish you can see. Write beside each part anything it does

Have the questions read aloud to be sure all the children understand them, and know what to do Help only if it seems absolutely necessary. Change the groups halfway through.

THIRD PERIOD

Aim.—To discuss what the children have been able to see, and to raise new points.

Introduction.—Let the children take out their slips of questions, and their own records and tell them what is to be done.

I. Let each question be read in turn and the answers be discussed

1 Movements.—Write the word on the blackboard. The use of the tail and front pair of fins should have been grasped, as outlined previously

Draw attention to the structure of the fin (blackboard diagram) stiffened to strike the water and so push backwards against it, and drive the fish forward (See foot of Plate XI)

Speak of the shape, and its value in cutting through the water, cf. a boat, a bird's body in air, airship and aeroplane.

2. Movements of mouth and gill plate.—Ask what the children think the fish is doing (probably drinking) Tell them that we cannot really see what is happening when it opens its mouth regularly all the time, but that it has been found that this is its way of breathing We breathe through our noses, and through our mouths sometimes,

if we have been running hard. When we do that, we take in air. We need fresh air in order to live, and if we were under water where we could not get it, we should drown. But there is some air in water, and fishes can get it out. They take in water, and it runs out again through the plates we can see at the sides of the head, and while it is flowing through, the air is taken out of it, so that the fish can use it to live.

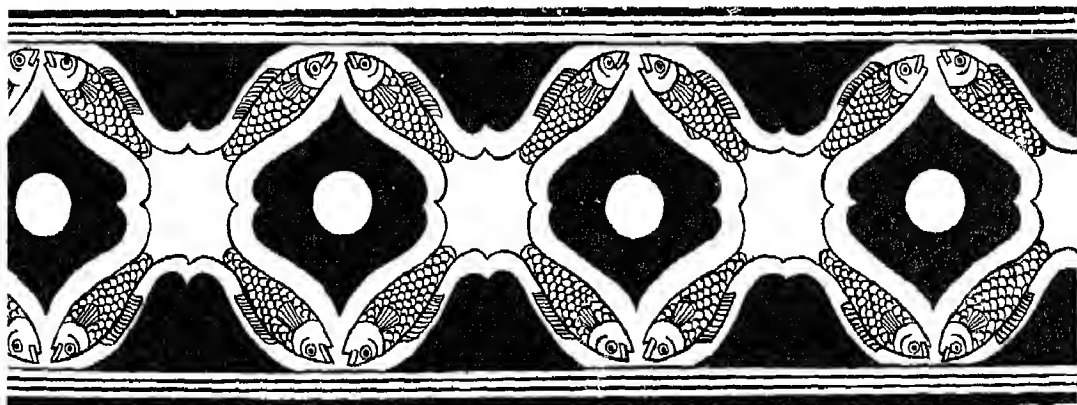
3. **Senses.**—Collect the children's observations. They will have seen that the fish can find a little piece of meat some distance away. Tell them (when the other senses have been dealt with) that the sense of smell is very keen, that the fish can smell bad water and avoid it, and also smell things a long way off as scents are quickly carried through water. Many fish live practically in the dark, when their eyes would be little use to them, and most fish keep largely in shadow. Down in the deep sea the fishes and other creatures move very quietly, and there are probably few sounds to hear. So that smell is more important than anything else. Draw attention to the pair of hood-shaped nostrils directed backwards over a pair of

little pits just above the tip of the snout, these are where the sense of smell is located. (Thenostrils are *not* connected with breathing.)

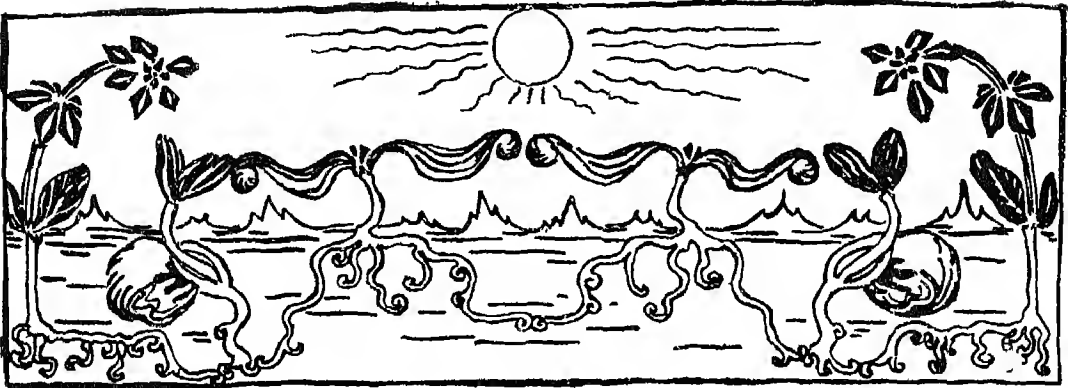
Draw attention to the silvery-looking line along each side of the body, which can be seen in certain positions. This probably helps them to feel movements (vibrations) in the water.

The scales.—Let the children describe the arrangement. Mount a few herring scales by gumming them on to black paper, so that these can be passed round. The children can see the rings on the scales, and the part which has been covered by others. Notice how smooth and flat they lie, so that they do not catch the water and hinder movement. (The eyes, too, are flat.) The body of a fish feels slimy. The slime and the scales probably protect the skin against disease, and they make it slippery to catch, so protecting the fish against other fish, birds such as ducks and herons, otters and water rats.

II. Keep the fish for further observations, especially for the children to look for the nostrils and *lateral line* (line down side).



XI. PLANTING SEEDS



POINTS FOR THE TEACHER'S CONSIDERATION

ALL the seeds required may be planted during one period, or the process may be spread out and each planted in relation to a particular lesson. Four- or five-inch plant pots, shallow wooden boxes, some jam jars and narrow-necked potted meat jars will be needed. For planting, use a good sifted soil if possible. Mr T. C. Dymes, writing in *School Nature Study*, suggests that for the seeds of wild flowers the top inch of each pot should be filled with baked soil, to prevent undesired weeds from flourishing at the expense of the selected seeds.

In connection with the series of lessons, the following seeds should be planted: Snapdragon, Plum, Sycamore, Horse Chestnut, Goose Grass, and any others selected from the hedge. Since under natural conditions seeds plant themselves as soon as they are ripe, and remain in damp soil and leaf mould through the winter, it is usually good to plant them in the autumn. But if they cannot be kept damp and protected from frost through the Christmas holidays, it is better left till January.

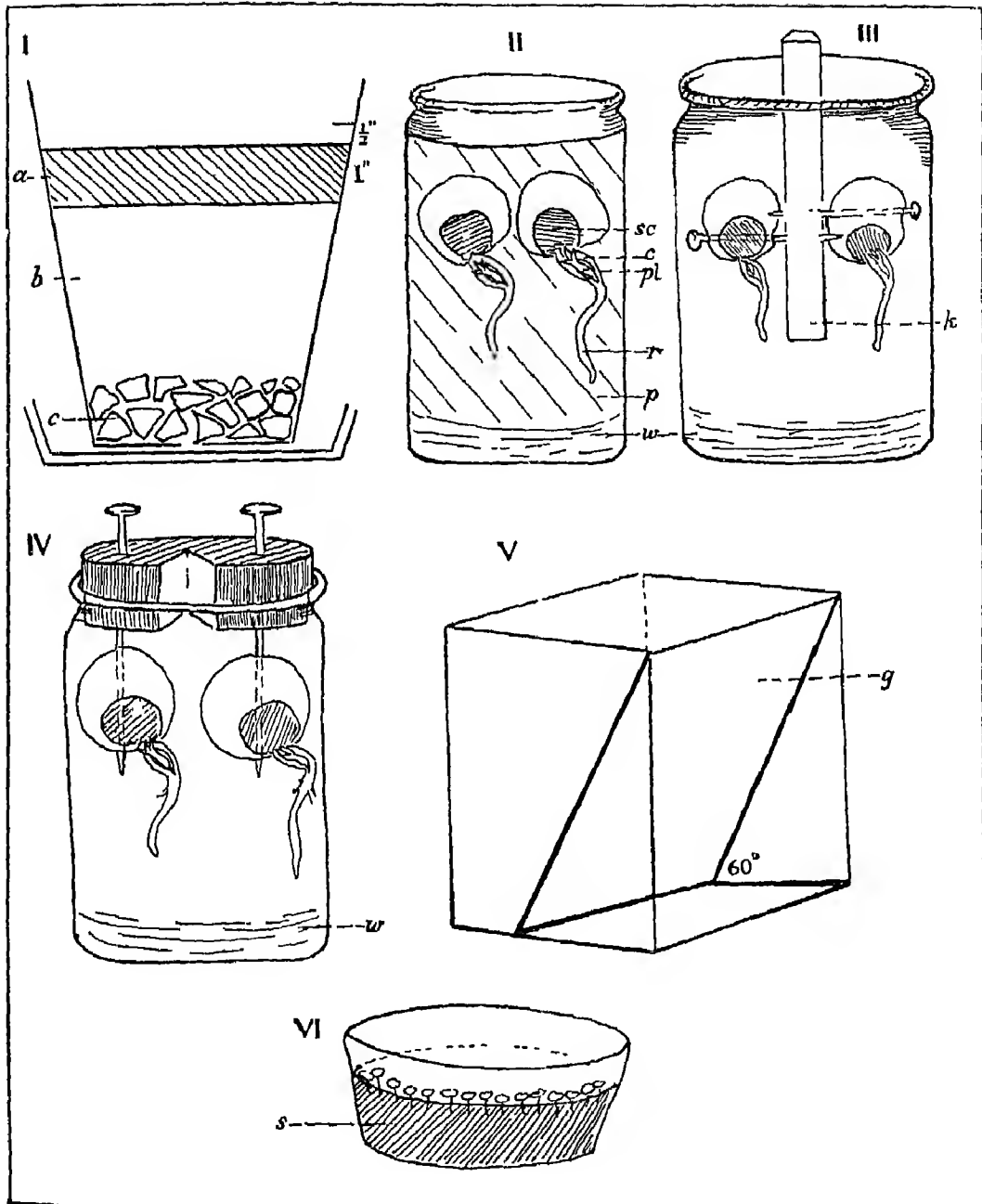
The smaller seeds, such as Snapdragon

and Goose Grass, may be planted in drills in small boxes, with holes bored in the bottom and a layer of coarse gravel or small broken crocks for drainage. A sheet of glass or thick paper placed over the top helps to keep them damp, but must be lifted frequently to give them plenty of air.

The larger seeds may be planted in pots, also provided with proper drainage. Four or five Horse Chestnut or Sycamore seeds may be planted in each pot, each one should have a wooden plant label, or a flag label, for the name of its owner, and the little group of children may combine to look after the pot. It is essential to make the conditions as natural as possible, or children get the impression that certain seeds, grown in school, should be grown in queer ways, and dissociate them from the ordinary life of healthy plants. Grow some in the garden if possible.

For the sake of seeing the growth of the whole plant, however, it is useful to grow some of each kind in glass vessels. The large seeds can be grown in jam jars, lined with a sheet of blotting paper which must be kept damp (It is put in dry). If a

PLATE X



I Method of growing seeds in pot—small seeds on surface with sprinkling of soil over, larger seeds with $\frac{1}{2}$ inch soil above c, crocks for drainage, b, sifted garden soil, a, baked soil II Horse Chestnut seeds growing in a jar lined with blotting paper (p) w, water, pl, main stem or plumule, r, main root or radicle, sc, scar, c, stalks of cotyledon splitting III Horse Chestnut seeds pinned on cork, wedged in sides of jar (h) IV Horse Chestnut seeds suspended from cork from which a segment has been cut to admit air (long pins are used) V Box with glass plate (g) fixed in at 60° VI Snapdragon or Goose Grass seeds growing in damp sand (s)

little water is kept in the bottom this will be drawn up, but once a day the top part also should be damped. Horse Chestnut seeds can be grown over water in narrow-necked potted-meat jars so that they rest in the neck or on the rim. It is best to let these germinate first in moss or fibre in a bowl, and put them over water when the root is long enough to reach down to it. The seed must not touch the water, but should be damped in the early stages. Yet another way is to fix the seeds by a pin to a cork, so that they either hang down into a jam jar or are on the side of a sheet of cork wedged in the mouth. They are, however, rather liable to go mouldy through the wound opened by the pin.

To display the growth of roots of the smaller seeds, a wide potted-meat dish may be filled with fine damp sand and the seeds planted round the edge, so that their roots will show against the sides. All glass vessels should have a sheath of dark paper to keep the roots in darkness, which can be slipped off to look at them. Small seeds may also be grown in shallow, unglazed earthenware saucers, in damp sand, damp sawdust, coconut fibre or sifted soil.

A useful piece of apparatus for displaying the root systems of seedlings is a wooden box (a small margarine box) about 8 in. \times 10 in. \times 6 in. with one of the large sides knocked out and replaced by a sheet of glass, sloping inwards towards the base at an angle of about 60°. This can be kept in place by narrow strips of wood nailed against the two short narrow sides, which are used as uprights. The oblique glass plate then forms the front of the box. It is filled with soil and the seeds planted. The glass side is turned away from the light. The roots press against it and are easily seen.

THE LESSON

If a lesson is devoted to the planting of all the seeds at the same time, the teacher will have to plan beforehand what small groups she will be able to employ. Spread plenty of

newspapers and let the work be done on desks or on the floor. If it is fine weather, the planting in pots might be done in the playground. Some of the children might sift soil beforehand, and they might take their pots home to scrub. If baked soil (prepared beforehand) is used for the top layer, an old saucepan or metal tray can be used over a low gas burner, and the soil constantly stirred with a stick, or it can be placed in a hot oven. It must not begin to burn or its nature will be changed.

One period would be given to planting seeds in soil. For forty children, ten plant pots for Horse Chestnut and ten for Sycamore seeds would be needed. Every child could either arrange the drainage crocks or fill the pot with soil. Each could plant his own two seeds and write his own labels. The seeds could be on the table and the children could get them as they were ready. The pots could be given out, one to each desk. The teacher would explain what was to be done, using a blackboard diagram. If the soil is arranged in four heaps on newspapers on the floor, and the crocks similarly at the other side of the room, so that the children can get round, they can take what they need in an orderly way without crowding. Each child should show the teacher the pot with the drainage arranged before passing it on to have soil put in. The soil should be pressed well down before the seeds are planted. Dusters and the means of washing hands afterwards are of course necessary.

When this has been done, one or more shallow wooden boxes should be prepared in front of the whole class, children carrying out the processes at the table. Shallow grooves can be made with a ruler and the various small seeds planted, each row being labelled. A box might be kept ready prepared for any seeds the children want to try, for instance, orange, grape, hawthorn, rosehips.

In a second period, the "artificial" growing of seeds might be prepared for. The teacher would first of all explain the object

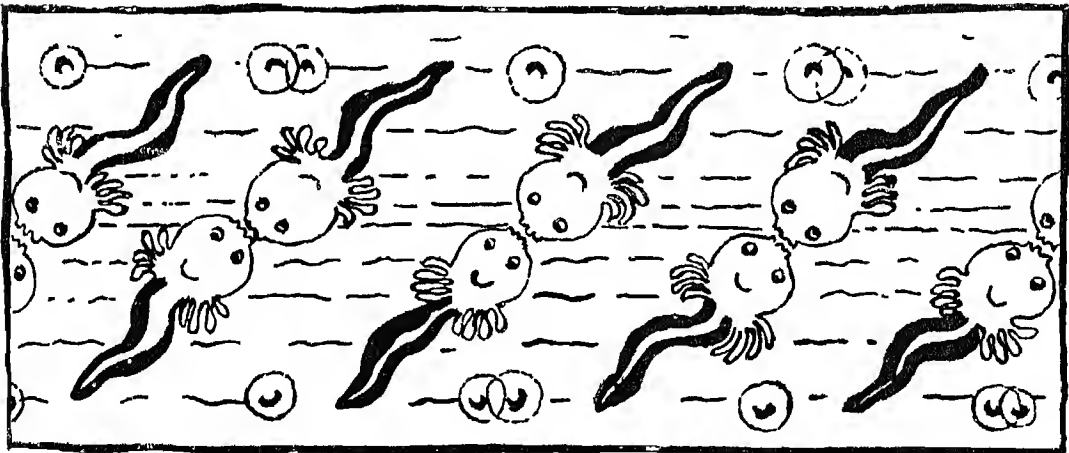
of using glass vessels, so that the roots could be seen, and the absence of soil, so that the plants could be taken out to look at more closely. Each type decided upon would then be set up in front of the children, using their help as far as possible.

Further work.—The children would watch the growth of all the seeds, make dated and labelled drawings of their own seedlings, and of any others that give additional points; for instance, the roots of both Sycamore

and Horse Chestnut may be drawn for comparison.

Growth of a selected seedling might be recorded graphically as a classroom record by marking a horizontal line on a sheet of paper, say 3 feet long by 10 inches high, to represent the level of the seed, and pasting a series of dated drawings along this line. The children should by this time be able to measure in inches and to make drawings of large seedlings approximately accurate in size.

XII. LIFE HISTORY OF FROG



POINTS FOR THE TEACHER'S CONSIDERATION

FROGS are called Amphibians, because they spend the first part of their lives in water, breathing dissolved oxygen like fishes, by means of gills, and in the adult phase they breathe atmospheric oxygen and live mainly on land, though they are limited to damp places because they still breathe partly through the skin, which must be kept damp. They show in their individual lives the transition in habit and structure which must have taken place in all the races of higher vertebrates when they passed from

the water to dry land. The name Amphibia indicates dwellers in "both" worlds.

Frogs lay their eggs in large masses in shallow water from late February to early April. They are fertilised by the male as they enter the water. This process is called spawning. The same thing happens in fishes. Each egg is nearly 2 mm. in diameter, and has a black pole which is uppermost and a white pole which remains underneath. It is surrounded by a gelatinous mass which swells on entering the

water, and merges with the adjacent ones. This is not edible, as some people imagine, but serves to space the eggs so that they do not press upon one another and so become deformed. It ensures that each has sufficient light and air as it buoys them at the surface of the water. It makes all the eggs less liable to be washed away than if they were separate, and it possibly serves to prevent them from being eaten, as it is slippery to catch hold of.

The eggs begin to develop at once, becoming somewhat oval by the end of a week, and the head, body and tail can be recognised by the tenth day. The tail grows rapidly longer, and three pairs of small tufts, the first gills or breathing organs, grow outward from the sides of the neck. Three or four days later the tadpole will be seen wriggling about in its mass of jelly, and eventually it burrows a hole and bores its way out, through both the inner envelope and the jelly. It is then less than $\frac{1}{4}$ inch long.

It has at first no mouth, but for a day or so attaches itself to weed by means of a little sucker or cement gland just under the head. Until its mouth breaks through, it feeds upon the yolk which it has absorbed from the egg by growing round it. It then breaks away, and begins to feed on the water weeds. The mouth is wide and horny, with rasplike projections on the lips. It eats ravenously. At a little later stage the long intestine coiled like a watch spring, which is capable of digesting a large quantity of vegetable food, can be seen through the thin body wall on the under side. The projecting end, and the faeces, are often mistaken by inexperienced observers for the beginning of the hind legs. This projection is, however, in the middle line. The eyes and nostrils appear shortly after the mouth.

At about the same time as the mouth, four pairs of gill slits appear perforating the pharynx to the exterior, these can be seen with a good hand lens, but would not be seen by children. They would, however, notice that the first-formed tufts of external

gills disappear. This does not take place until the second set, or internal gills, are formed. These are fringes on the edges of the gill slits comparable to those of fishes, so that the tadpole is at this stage, a true fish. A fold of skin grows backwards over the gill slits forming an operculum, opening only by a small spout which can be seen protruding slightly on the left side. This is complete about four weeks after hatching when the tadpole is about $\frac{1}{2}$ inch long.

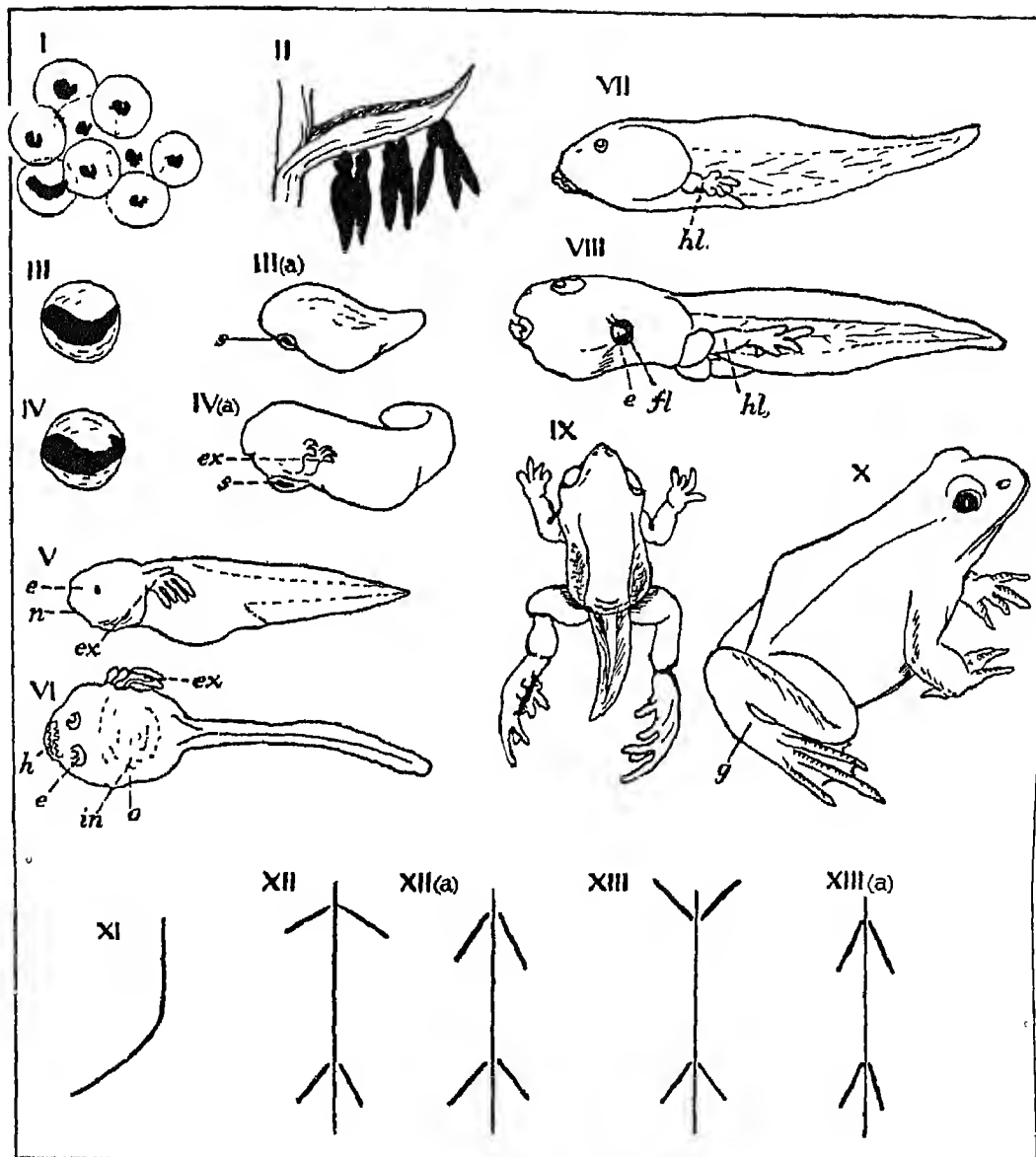
The fish-like character is further indicated by the presence of a broad delicate fin situated along the middle line, passing from just behind the head, round the tail to the hinder opening of the food canal. This greatly assists the tail stroke by which the tadpole swims. It is the condition still found in very primitive fishes, though they are all provided with additional paired fins (except the Lampreys, which are regarded as even more primitive than true fishes). The tail is very muscular, as it is in fishes.

At about four weeks old, or even earlier, the tadpoles seem to thrive better if provided with some animal food, either tiny "water fleas" and worms, or raw meat. They grow very rapidly, and at seven or eight weeks begin to change from black to a light yellowish brown speckled with very dark brown, more like the colour of the adult frog.

In the fifth week the "buds" of the hind legs can be seen at the root of the tail. In the seventh week the joints can be seen, and in the eighth the toes. The front legs are also formed, but are still hidden by the operculum.

At about eight weeks old the tadpoles begin to come to the surface to breathe by using their newly formed lungs, though they still use gills as well. Gradually the lungs take the place of the gills, blood is withdrawn from the gills, and they shrivel up. It will be seen, therefore, that internal preparations are being made for the adult life before the actual change takes place. They may then be $1\frac{1}{4}$ to $1\frac{1}{2}$ inches long.

At about eleven weeks old the tadpole throws off its infant (or *larval*) skin, and a



FROG I Spawn II Newly-hatched tadpoles clinging to a water weed by means of sucker (shown in III (a) s) III Embryo before hatching, surrounded by jelly mass III (a) Embryo as in egg (Fig III) s, sucker IV Embryo ready to hatch IV (a) Embryo as in egg (Fig IV) s, sucker, ex, external gills forming V Early tadpole, showing e, eye, ex, external gills, n, nose (side view) VI View from covering the gills on right side. VI formed, fl, fore limb developing VII View from side hl, hind limbs VIII View from side hl, hind limbs X Frog g, long hind leg
 GOLDFISH—swimming strokes XI Tail stroke to left for strong movement XII, XII (a) Position of front fins for gentle forward movement XIII, XIII (a) Position of front fins for backward movement

frog-like body emerges, much thinner than that of the tadpole, with a high bony ridge on the back, larger eyes, wider mouth with no horny lips. The front legs are now revealed. All that remains is to get rid of the tail, which, in the economy of Nature, is not shed, but *resorbed* into the body, thus providing it with a certain amount of substance

But these final changes will not take place unless the tadpole can climb out upon dry land. If no land is provided, it must remain for ever a tadpole, and eventually die. In captivity the best way is to put the tadpoles (a few only) into a shallow, unglazed plant-pot saucer containing water, and bank it round with turf, arranging stones so that the tadpoles can climb out of their saucer. The home described for frogs is quite suitable, but an easy slope must be provided

THE LESSON

I. The life history of tadpoles can best be treated quite informally, since they must be kept under observation for eleven or twelve weeks. If possible each child should have a small quantity of spawn in a 2 lb glass jam jar. Each jam jar should contain a little Canadian pondweed. In addition, it is a good thing to put a quantity of spawn in a large shallow bowl, with weeds and some of the mud of the pond. Enamel or earthenware bowls are satisfactory. When the tadpoles hatch, the jelly should all be removed or, in the confined space, they will be suffocated in it. The tadpoles kept in the large bowl can be watched in turn by the children. Their habit of "grubbing" in the mud very busily will be noticed. In this way they find a good deal of minute plant and animal food. Those in the bowl will probably grow more rapidly than those in the jars, if fed in the same way, while if, at about the eighth week, fresh ones are brought from the same pond, they will probably be still larger, owing to the greater quantity of food available (though it is

not possible to be quite sure that they were not hatched earlier).

The date when the spawn is found should be recorded, and all the dates on which new stages occur. These are best entered on a wall chart. The children may either draw the tadpoles at various stages, or cut them out (free cutting *without* an outline) in black paper which can then be mounted. A frieze could be made by mounting them all on grey or greenish paper. They would be cut out considerably larger and this often helps to secure a better shape and better detail. Without attempting any scale at this age, the children should try to show relative sizes as they progress. Each drawing or cutting should be labelled to say what it shows. This work could be interspersed with observations on other subjects, several things being examined in one lesson. Some of the observations might then be collected together in one period, while the later ones might be taken at the same time as setting up a home for frogs and starting observations upon them.

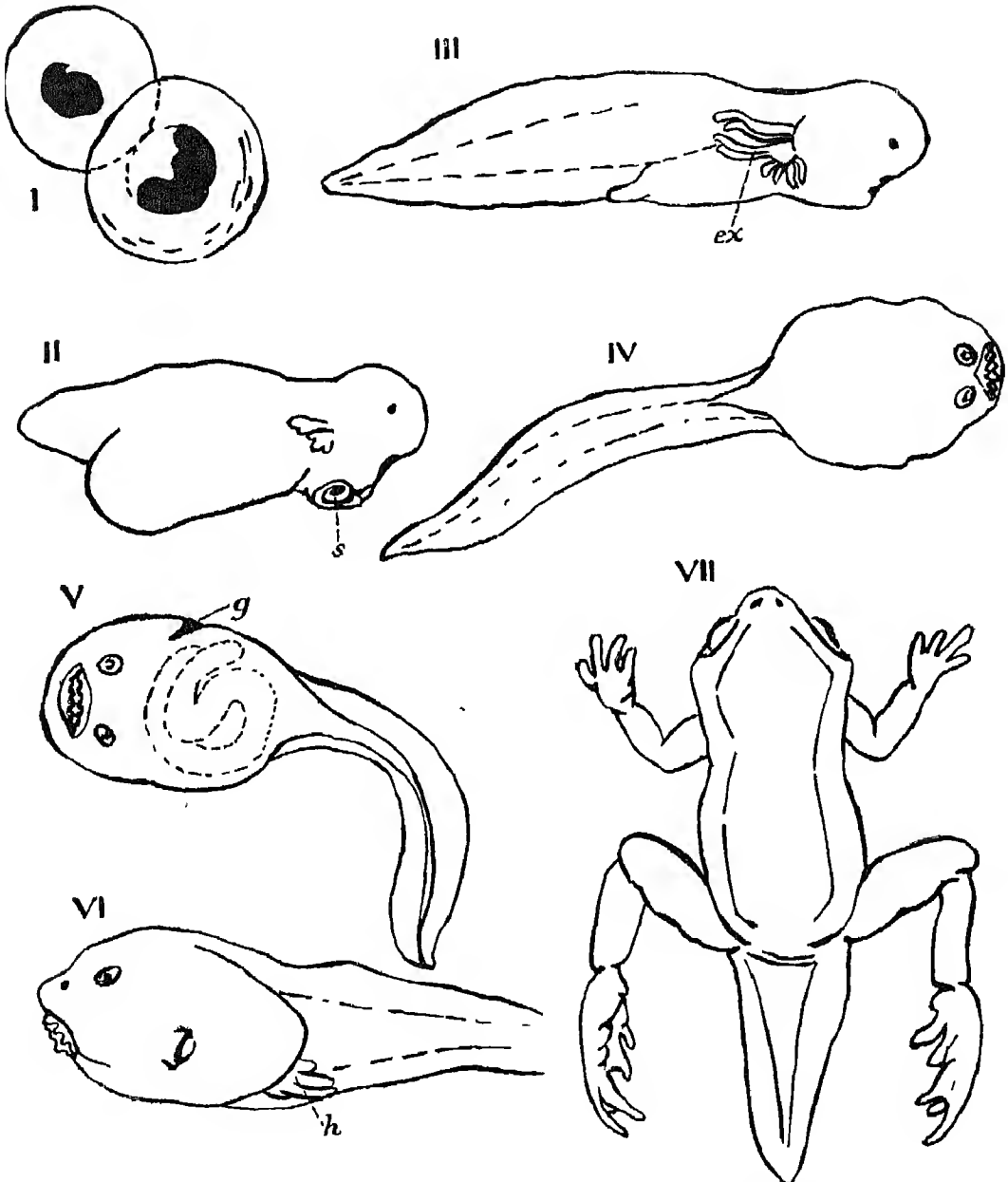
II. In the lesson or lessons which summarise the work on tadpoles the following points should be made clear

Development.

- (1) Eggs or spawn. Use of jelly
- (2) End of a week (if spawn is just laid) tadpoles can be seen developing as little oval bodies.
- (3) End of a fortnight, "they hatch and attach themselves to weeds. Describe the sucker
- (4) A week after hatching, the body and head together have become round (or nearly so), and the tail long and thin. A day or two later, the tail fin is plainly seen. The gill tufts (external) are quite clear. The tadpole is about $\frac{1}{2}$ inch long
- (5) After four weeks, the gill tufts cannot be seen. Explain that new ones are formed, covered in by skin. The spout can be seen. Explain that the

SKETCHES FOR THE BLACKBOARD

PLATE XII



I Eggs II Newly-hatched tadpole s, sucker III Tadpole breathing by external gills (ex) IV Tadpole with no gills showing V Tadpole from underneath showing coiled intestine and gill spout (g). VI Tadpole from left side showing hind limb developing (h) VII Tailed frog showing fore and hind limbs

tadpole is now breathing like a fish, by taking in water which comes out at the spout. It is nearly an inch long.

The accompanying outline sketches illustrate the type of blackboard diagrams which might be used at this stage to emphasise these points

- (6) Hind legs begin to appear. They probably will not be noticed till almost fully developed, about the seventh week. Tadpole 1 inch or more long.
- (7) Tadpole getting shorter. Ninth or tenth week.
- (8) Cast skins *may* be found. Change to frog-like body, eyes, mouth. Long hind legs and webbed feet. Tail much shorter.
- (9) Complete frog; tail gone.

Habits.

- (1) Clinging to weed by sucker.
- (2) Swimming and feeding on weed. "Wriggling" through water. Later, as it gets larger, tail stroke can be clearly seen.
- (3) Begin to eat meat and later, ants' eggs. Burrow in mud for food. Still eat weeds—seen to graze or rasp, using lips like a nutmeg grater.
- (4) Begin to come to surface occasionally about eighth week.
- (5) Begin to crawl on to stones placed for them in new home.
- (6) Leave water altogether as little frogs. Jump.

If the class is divided into two teams, whose members in turn ask the others questions on either life history or habits, most of the facts will be brought forward, and the teacher can fill in any gaps or amplify where it is desirable, at the end.

III. The Frogs' home.—Two frogs could be set up in homes. Wooden boxes are suitable, with all but a framework of the lid and two sides replaced by fine wire

netting ($\frac{1}{4}$ inch mesh); or the box may be turned sideways, so that the lid acts as a door, this can have a panel of wire netting, and the box can be painted white inside so that its contents can be easily seen. If possible a zinc tray should be fitted inside for easy cleaning (a sheet of perforated zinc can be bent up at the edges without tools). This should be filled with sods of grass, cut short so that the frogs can be easily seen, but with one or two longer tufts to give them shelter. A large shallow flower-pot saucer (9 or 10 inches in diameter) of water makes a pool, set into the grass. As before, let the children arrange the home and feed the frogs. The grass will have to be kept watered and the water in the pool renewed. The tray can be removed and the grass watered from below. The frogs will usually eat mealworms and small earthworms.

The box might be partitioned down the middle, and one side set up with very light surroundings, white paint, very short grass and no shelter, or light-coloured stones and grass, and the other painted deep green, with plenty of grass and shade. If two frogs which are nearly alike in colouring are introduced, in a few days the one in the light half will have become much paler and yellower in colour, the other much darker. If they are now reversed, the opposite change will take place in each. For the children at this age, it is probably sufficiently interesting to see this happen, without any explanation, but the change is due to the action of light on nerve-endings in the skin which control the pigment cells. These are branching cells containing colouring matter. Under the influence of light they contract and withdraw their colour, while in the absence of light the colour is allowed to spread extensively and the skin assumes deeper tones.

IV. The chief points for the children to notice in watching the frogs are

Habits—Feeding. Fondness for sitting in the water.

Jumping, springing off the long hind foot with the knees bent.

Movement of the eyes response to light, (a) what part of the home they like to be in, (b) effect of a flash light, (c) response to hearing tapping and whistling might be tried, (d) response to smells: various strong-smelling substances, e.g. methylated spirit, ammonia, might be brought near the cage (not near enough to cause strong irritation). These little experiments are best carried out by the teacher with a small group of children

Structure—The difference between the front and hind legs, and the relation to movement. The absence of nails (which are skin growths). The soft, moist skin, no scales to protect it. (Used for breathing. Frogs cannot cross salt water because the skin cannot stand the effect of the salt, so they are not found in islands far out

to sea.) The eyes, wide apart and high up so that they have a wide view. Possibly the tongue may be seen to shoot out for food. It is attached just inside the lower jaw, not at the back of the throat. Periodically the skin is cast

V. As a record of observation on the Frog, the children might try to write a connected account of what they had seen. They would naturally pick out the points that had interested them most, and not write very much. The frogs might be kept for about a fortnight, and then let go. It is possible to get them to spawn if taken early enough and comfortably housed. There must in this case be no attempt to disturb them for at least a fortnight when they begin to cling together. They will probably not want food. The male is distinguishable by his thin body and swollen thumbs.

XIII. THE AWAKENING OF THE HEDGE



PREPARATION

IT is unlikely that there will be suitable weather for taking a large class of children out to see the hedge so early in the year, though if it is near at hand and it is suggested to them, some children may be able to go to see for themselves.

The teacher should visit the hedge and find out.

- (1) What plants have kept green all the winter
- (2) What new growth is beginning (a) from underground stems or roots, and (b) from germinating seeds

She should collect enough of (1) to be labelled and placed on her Nature Table, so that all the children have a chance of

seeing them. They might include such plants forming part of the hedge as privet, fruiting stems of ivy, bramble, the first is sometimes an evergreen, the second always, the third generally keeps its leaves only in sheltered positions. This habit might be discussed. Under the hedge, sheltered by it, there might be the ordinary small-leaved ivy which is evergreen, and some such plants as dead nettles, ground ivy, and violets, if the position is very sheltered. This brings out the point that the shedding of leaves, or the withering of all parts above ground in herbaceous plants, is a protection against bad weather, and in particular, against cold winds which would dry up all the water from the plants and so cause them to die, a point previously explained.

Examples of (2) (a) and (b) would also be put on the table. (2) (a) should have the root or underground stem attached. This would be a day or two before the lesson, and the short discussion would be incidental to drawing attention to the material.

THE LESSON

Aim.—To see what happens in the hedge in early spring.

Material.—The examples on the Nature Table. Enough small twigs of such things as Elder, Honeysuckle, or Wild Rose, for about a third of the children to have one of each. Goose Grass seedlings (as the commonest; others would do), and Goose Grass fruits for another third. Young shoots of such plants as Wild Arum, Cow Parsley, Ground Ivy, Violet, Dead Nettle, Cinquefoil, to be shared amongst the rest. (These should not have the rooting portion pulled up.)

I. Group I might examine their twigs to find out all they can about the young leaves, and how they had been protected during the winter. They could attempt to make *large* drawings to show them, half folded.

Group II. might draw two stages of the goose grass seedlings, and refer to the fruits: some can generally still be found.

Group III would look at the little shoots with the teacher, who would also show them the root of the arum, which passes into a short thick stem with a bud that lies underground and is protected throughout the winter. The children would also examine the stems of the other plants, with the ridges passing round the stem that are the scars of old leaves, and the bud at the end turning up to form the new plant. At intervals short roots will be found growing from the nodes (marked by the scars). The material would then be interchanged.

II. When all the children had examined examples of each group, a short class lesson could be given. The whole would occupy about two half-hour periods; the formal lesson about a quarter of an hour.

The class would first be asked to notice that the woody plants forming the hedge go on growing year after year, from new buds. If no one ever cut the hedge, it would grow very tall and ragged, and the brambles and wild roses would bend over their branches and root them farther out and so gradually the hedge would get wider, so that in time the path (in the case of a roadside hedge) would get choked.

The children might then describe the opening buds, which were protected through the winter by little hard scales in the case of the elder, rose and bramble, by the smallest outside leaves pressed close together in the honeysuckle. These buds formed in the previous autumn, ready for the spring.

The plants at the foot of the hedge had no hard buds, but then they were not exposed to the wind, they were protected under the soil. Their buds were white and firm, but not woody. (One or two should be dug up and shown.) The children might name those that had a very short stem growing from a long root (wild arum) and those with a creeping stem.

The goose grass fruits and seedlings are an

example of very early germination. They may often be found as early as December. The root emerges first, then it continues upwards (the hypocotyl), and draws out of the fruit two broad oval seed leaves. Between these the true stem emerges, with a bud at the top. This unfolds in a succession of *whorls* or circles of narrow leaves, the characteristic of the plant, but at first they are quite smooth. The later-formed leaves and the stem above two or three inches are covered with minute hooks which roughen the surface and so help it to cling to the hedge.

III. The children might then make dated lists in their notebooks of the plants found "awake," under the headings of opening buds of the hedge, underground buds, and seedlings.

IV. Further work.—From this time onwards any new events in the hedge should be recorded on a special wall sheet kept for it, and illustrated on the Nature Table. If the hedge is easily accessible, the children should

notice the birds and later, the nests. Very common ones besides House Sparrows would be Blackbirds, Thrushes, Yellow-hammers probably, Chaffinches, Great Tits, Robins. The songs, call notes and alarm notes might be listened for. Male Blackcaps and White-throats are easily recognised, as their names indicate. Coloured pictures of all these birds (postcards from the Natural History Museum, South Kensington) might be mounted above the Nature Table during the spring to help the children to recognise them. Others that might be noticed are Goldfinches, Greenfinches and Linnets.

The flowers should be noticed as they appear, and added to the table. Lesser Celandine, Wild Strawberry and Violet, Dead Nettle and Ground Ivy come first, with Blackthorn, or Wild Plum and Hazel Catkins on the hedge. The green Dog's Mercury may be seen as early as the first week in February. Then the succession of the Dead Nettles and Parsley-like flowers, with the Hawthorn and other bush flowers. Notice the succession of *colours* for further reference.

XIV. SYCAMORE AND HORSE CHESTNUT SEEDLINGS

POINTS FOR THE TEACHER'S CONSIDERATION

IT has already been said that a double act of fertilization causes both the embryo plant and its food material to develop, forming the seed. The embryo consists of a root and stem forming one axis, and a pair of leaves growing at right angles to their junction. The store of food material is called endosperm. The embryo plant is at first embedded in it, but in many cases before germination, the endosperm is completely absorbed into the first pair of leaves, called the seed leaves or *cotyledons*.

This happens in both Sycamore and Horse Chestnut, so that during seed formation the cotyledons swell and occupy the whole cavity of the seed coat. On the other hand, in the Ash and Goose Grass, the endosperm remains surrounding the small embryo, which only absorbs this reserve of food after germination has started.

The amount of endosperm present determines the size of the seed, whether it is absorbed or not. In the case of seeds with little endosperm, when once germination

has started it is important that they shall grow rapidly, so that the roots are firmly established to draw up water and the leaves to make carbohydrates. Since the cotyledons are already perfectly formed, they are very often pulled out of the seed coat and above the ground to serve as the first pair of foliage leaves to nourish the plant. This is brought about by the rapid growth of the *hypocotyl*, the region of the main axis where the root merges into the stem. To release the cotyledons from the seed coat the hypocotyl usually grows more on one side than the other, so that it assumes a curve, and then straightens out, pulling the cotyledons with it. To bring this about the seed itself must be firmly wedged. It is important, in making a study of seedlings, to notice such points as this, which bring out the value of every detail of the structure and growth. In the case of a sunflower seedling grown in a glass jar lined with damp blotting paper, the seed was not fixed, and the hypocotyl grew to a height of 10 inches carrying the seed coat with it, in a vain effort to rid the cotyledons of what had become a trap.

In some cases even large seeds send up their cotyledons to act as foliage leaves. This is generally when the plant will be large, as in the Sycamore, or where rapid growth follows, as in Runner Beans or Sunflower.

The Sycamore seedling.

Aim.—To watch its growth.

The seeds were examined and planted in the autumn. The two seed leaves were seen unfolded, their green colour and leaf-like form were noted.

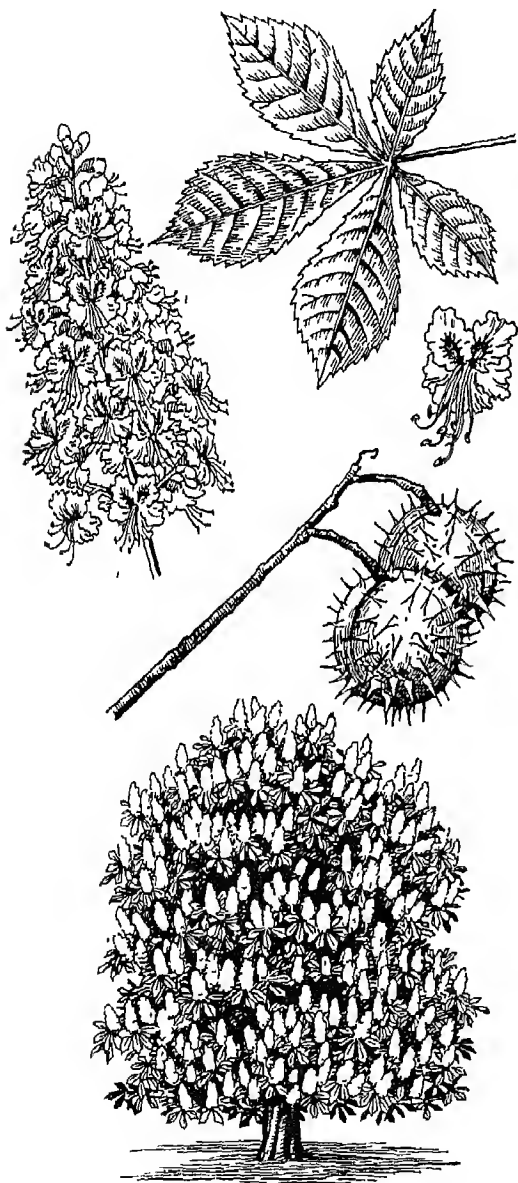
I. The growth of the seeds would be watched and dated drawings made. The following points would be noted.

- (1) The brown fruit coat becomes very dark and much softer as it absorbs water.
- (2) A short root emerges. This turns downwards
- (3) After a while the part immediately behind the seed begins to emerge as a short curved stem.
- (4) The curve becomes deeper. The bases of the two seed leaves begin to appear.
- (5) The curve lengthens. The seed leaves are drawn farther out. At last they are held only by their tips, and are then pulled right out. The stem behind them lengthens. Give the name hypocotyl to the region below the leaves.
- (6) Meantime, root hairs are growing which show fairly clearly the limit between root and hypocotyl, and also side or *lateral* roots. There is also sometimes a very slight swelling or ridge which marks the division.
- (7) The hypocotyl goes on growing for some time. The seed leaves, at first pressed together, separate and a small bud can be seen between them.
- (8) Some time elapses before this bud unfolds. When it does, it can be seen that there are two almost triangular, pointed leaves, slightly lobed and indented but much simpler than the typical foliage leaves. In between there is still a terminal or apical bud. These leaves grow in the opposite direction to the seed leaves (at right angles).
- (9) Notice that subsequent pairs of leaves unfold, each pair in the opposite direction to the last. Notice the gradual broadening of the later pairs, and that they are more deeply indented. The final shape is called *palma'te*.

II. Further work.—Keep the seedlings till the autumn and notice when the winter buds form (much earlier than you might expect) and how they are protected. If possible, plant out one or two seedlings in the garden, and keep one or two for comparison even a year or two later. Notice when the leaves fall, both indoors and out

The Horse Chestnut seedling

I. Follow the growth on exactly the same lines. Notice that instead of the seed leaves emerging from the seed, the bright pink "stem" separates and you can see that it is really composed of the two stalks of



the seed leaves, with a small stem and bud lying closely wrapped between them. The stem is curved, then straightens as it emerges. The interest of this is that these stalks protect the young bud.

Subsequently, pairs of leaves unfold, as in the Sycamore, but in this case each is compound, consisting of five leaflets. The later leaves have seven segments and occasionally on a full-grown tree even nine.

II. There is no need for formal lessons on the seedlings, but a period might be given to contrasting and comparing their mode of growth, when the following points might be tabulated. The heights might be periodically measured and compared. The names cotyledon and hypocotyl might be supplied at this stage.

Date of comparison *Sycamore.* *Horse Chestnut.*

Root grows first	Root grows first
Cotyledons are pulled out of seed coat by hypocotyl	Cotyledons remain in seed coat.
	Cotyledon stalks grow out.
Bud appears between cotyledons after so long.	Bud appears after so long between stalks of cotyledons
Has grown so high.	Has grown so high
Has so many leaves	Has so many leaves
Leaves are palmate	Leaves are compound, five or seven leaflets
Leaves are opposite and alternate.	Leaves are opposite and alternate

XV. BLUEBELL FLOWERS



Aim.—To understand the structure of a flower in which the essential parts are clear and the accessory parts attractive to insects

Material.—Flowers of the Bluebell. One whole plant and some leaves

Introduction.—Give the children the name Wild Hyacinth as well as Bluebell, and they will point out in what respects it resembles the Hyacinths already grown, but that it differs in being smaller and having fewer flowers, of one colour only (though white occasionally occur).

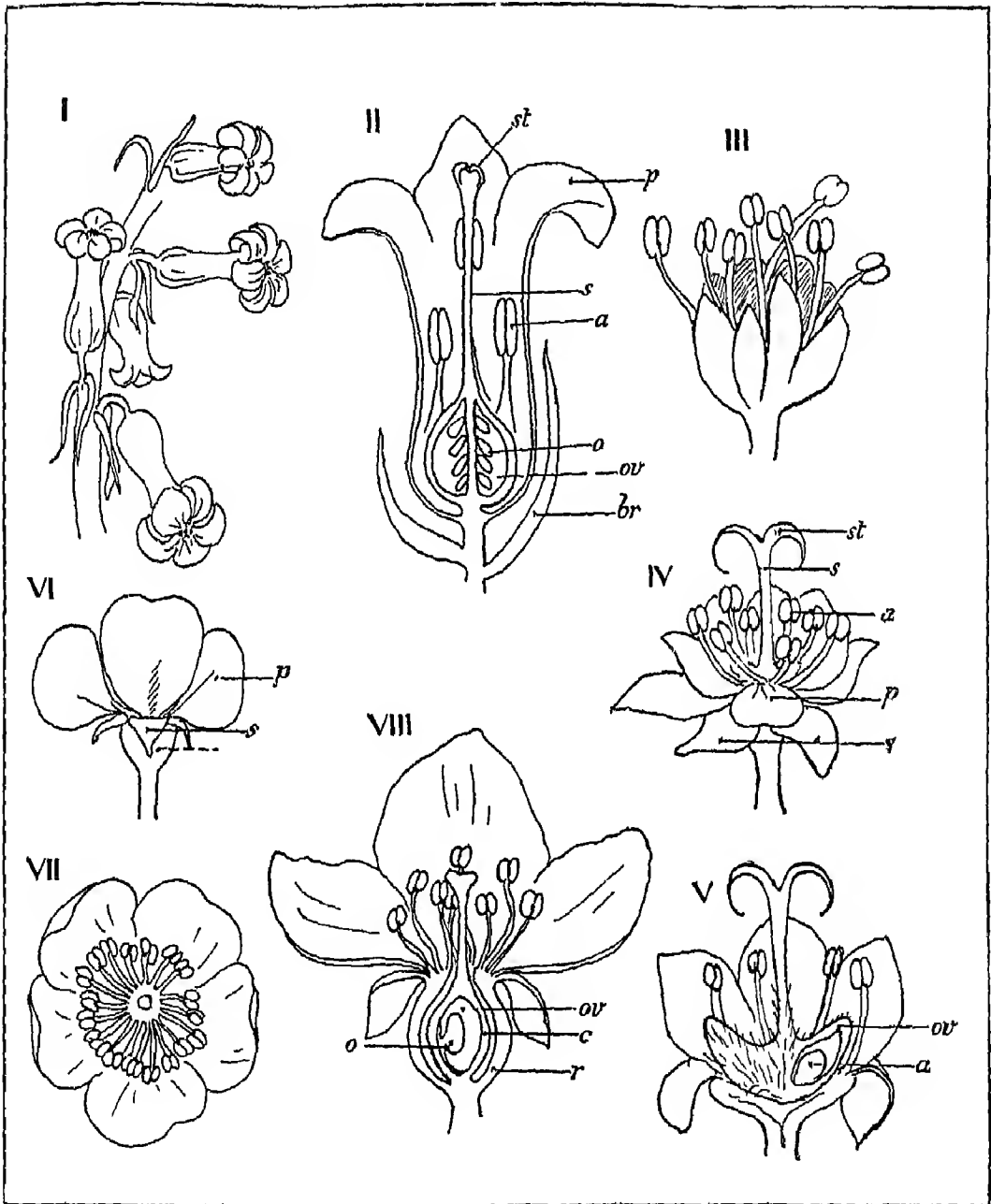
I. Show them the whole plant, notice that there are a bulb and long narrow leaves as in the garden Hyacinth, but much more slender and drooping easily. Explain that the bulb, by storing food, helps the flowers to bloom early in the woods, before all the leaves on the trees and bushes, and the long grass prevent insects from seeing them. What makes us think they attract insects to take their pollen to other flowers? (The bright colour and sweet smell, as in the Hyacinth)

Let each child have a fresh head of flowers to look at. Notice the arrangement of the flowers, how many there are, the little blue bract at the base of each, and that the top ones are still in bud, though the lower ones are fully open and perhaps forming their fruits (the knob inside can be felt).

Have the flowers put back into water, and give the children some which have been kept in water till they are beginning to wither. The fresher ones near the top will show all the parts of the flower quite well, and the lower ones will usually show the developing fruits

II. Structure of the flower. Notice the bell shape. Let the children find out how the bell is made up, of two rings (whorls) of coloured flower leaves, overlapping but not joined together to form a tube. This pretty, bright bell attracts insects to the flower, so does the sweet smell. Now let the children try to find out what the flower has to give the insects. For this, some of them will have to pull open (without injuring) some of the fresh flowers. They will be full of clear nectar at the bottom, especially

PLATE XIII



BLUEBELL I Inflorescence II Vertical section. *p*, perianth, *st*, stigma, *s*, style; *a*, anther, *ov*, ovary; *o*, ovules, *br*, bract
 MAPLE III Imperfect flower IV Perfect flower *sp*, sepals, *p*, petals V Vertical section of perfect flower
 HAWTHORN VI Flower—side view VII Flower—front view VIII Vertical section of flower *r*, receptacle, *c*, carpel,
ov, ovary, *o*, ovule

in warm, sunny weather. Remind the children that it is from this that bees make honey. Have they seen any insects coming to the flowers? They may have come into the classroom through the open window and should always be noticed. The children may go to gather bluebells and the teacher may previously have suggested that they should watch for insect visitors.

Let the children look in the middle of the flower, for the pistil. Recall its purpose. Draw it on the blackboard to show the three parts, explaining that the ovary contains the unripe seeds or ovules, the stigma is ready to receive pollen from insects, and because the flower has a long tube, the style or stalk is needed to carry the stigma up so that the insects can reach it.

Look for the stamens and notice how they grow and how many there are. Which are open and which have shed pollen? Look for pollen on the stigmas.

When a flower has a long tube, it is generally visited only by long-tongued insects like butterflies, moths and bees, because the long tube makes it difficult for little flies to get the nectar. (An explanation of the advantage of this to the flower might be left to a later lesson on Bees.) The drooping of the flowers is useful in keeping out rain, which might wash both nectar and pollen away. Notice that the unopened flowers do not hang down.

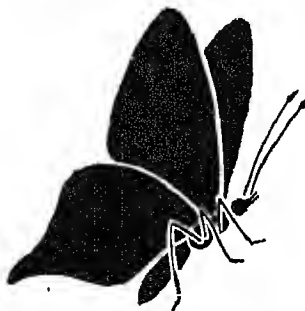
Look at the developing fruits. The ovaries have grown larger; the stigma and style have not grown. Cut one or two across so that the ovules can be seen with a lens.

III. Make a blackboard summary of the chief features of the flowers. It should include the following points

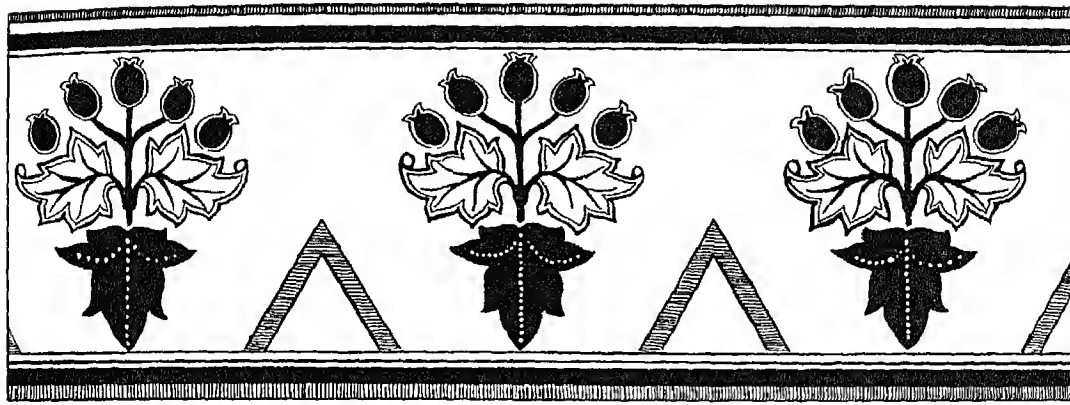
- (1) A head of flowers may have about 5-12 flowers
(How many in the Hyacinth?)
- (2) The youngest flower is at the top.
- (3) The lowest flowers open first.
- (4) The flower is a bell of six flower leaves. Give the name *perianth* (=surrounding the anthers) and explain what it means, and that it is used when all the flower leaves are the same colour.
- (5) The flower is tube-shaped, so probably is visited by bees or butterflies. Try to find out which.
- (6) There are six stamens. (How do they open? All at once?)
- (7) There is an almost spherical ovary, with a short *style* and small *stigma*.

IV. The children might draw a head of flowers, a single flower showing the bell and the bract, and a pistil from a withering flower, with the perianth leaves removed.

Further work.—Keep the flowers and see how far they will develop. Later, in the woods, collect the papery open capsules of three chambers, with round black seeds. Let the capsules be drawn. Some of the seeds might be set, though they germinate very slowly and a bulb takes three years to ripen. If a further study is required, Wallflowers offer similar points.



XVI. HAWTHORN FLOWERS



Aim.—Study of an open, cup-shaped flower, which invites all insects

Introduction.—Mention the name of the flower, and ask the children for any points they have noticed. What sort of fruits is formed? When are they ripe? Do they think insects are likely to visit these flowers? Why? Have they seen any? By this time the children ought to be beginning to notice insect visitors of their own accord, and may have seen that both bees and flies, especially small flies, are numerous.

I. Give each child a spray of flowers. Notice how conspicuous a cluster of flowers is, while one would not be noticed much. The arrangement is useful in attracting the attention of insects. In what other ways would the flowers attract attention? (By their creamy whiteness, bright pink stamens and sweet smell.)

Suggest that everyone shall look carefully at the stamens. Are they all pink? Notice the change of colour from pale straw colour through pink to dark brown. Which are dark brown, which pink, which pale? Are they all ripe at once? What has happened

to the dark brown ones? It will be noticed that as they unfold they pass through these changes, and the dark brown ones have all shed their pollen. They have also changed their position. How? Notice that they are all growing on the rim of the tiny cup that holds the flower.

These are flowers that give quantities of pollen to bees and flies, they can be seen flying away covered with it. What colour is it? Do they give nectar as well? The cups will be found to be full of nectar, just round the rim.

Now look for the ovary. It cannot be wholly seen, because part of it is below the flower and only part above where the stamens are attached. Look for the stigma. It is round and green. Which flowers have the largest stigma? It will be found in the central, or youngest flowers of the cluster, but in the elder ones it has withered. In the buds that are just opening it is projecting beyond the bud. So the stigma is ripe first, and later, the stamens in the same flower ripen.

How many flower leaves are there? There is a whorl of five white ones. These are called *petals*. They tell the insects that

there is honey and pollen for them. Once a man who was watching flowers to see what the bees would do, pulled the petals off some pear blossom, and he found that although there were still honey and pollen there, the bees flew over and never found it (Lowell, an American botanist.)

Looking outside the petals, we find a whorl of small pointed leaves. These are called *sepals*. They protect the young buds before they open, from wind and rain and frost

II. Let the children draw a cluster of flowers, and write a sentence or two about anything that has interested them in the flower.

III. Further work.—Keep on the look out for the developing fruits. Place sprays on the Nature Table when the petals have fallen, when the green fruits can be seen, and when, much later, they begin to change colour. Enter these observations on a Flower Chart.

XVII. SYCAMORE FLOWERS

Aim.—To study a wind-pollinated flower.

Introduction.—Many of the children will probably never have noticed these flowers, or thought of them as flowers, even if they are growing near at hand. Ask if they know what they are and tell them. Tell them also where they can see them growing.

Give out a spray to every two children if possible, and give them time to look at it carefully

I. Let the children notice first how the flowers grow, in a long green tassel on a central stalk which hangs down below the branch. The leaves are out or nearly out, but the flowers hang well away from them.

Ask the children what are the chief things that strike them about the flowers. The green colour is the chief thing. Is there anything about these flowers that insects would like? Would they notice that they were flowers? What else have we seen about flowers that insects seem to like? (Sweet smell in Hyacinth, Bluebell and Hawthorn.) What did this smell tell the insects? (That there was nectar.) Is there any nectar in these flowers? (No, none can be found.)

Let the children see how the flower is formed. They will find two rows of green leaves, eight in all, forming a very shallow

cup turned downwards, eight stamens standing out away from the cup on long stalks, and in the middle, an ovary with two distinct lobes drawn out slightly into two stigmas which already suggest little wings. Remind them of the fruit. Help them to see the parts by a blackboard diagram.

Now explain that, although a great many flowers rely upon insects to exchange their pollen for them, some flowers do not. In particular the flowers of many trees which grow very high up, swing their flowers out into the wind, which catches the pollen and carries it away. Show how easily the long, limp tassels swing as you shake a branch slightly. Then let the children notice how each stamen is held away so that the pollen is easily blown away by the wind, perhaps to fall on other flowers. Draw attention to the branched stigma held out to receive it.

II. Let the children mention the chief points spoken of, and make a blackboard summary.

- (1) The flowers are green.
- (2) There is no nectar, and no smell.
- (3) Many flowers grow in one tassel, hanging down.

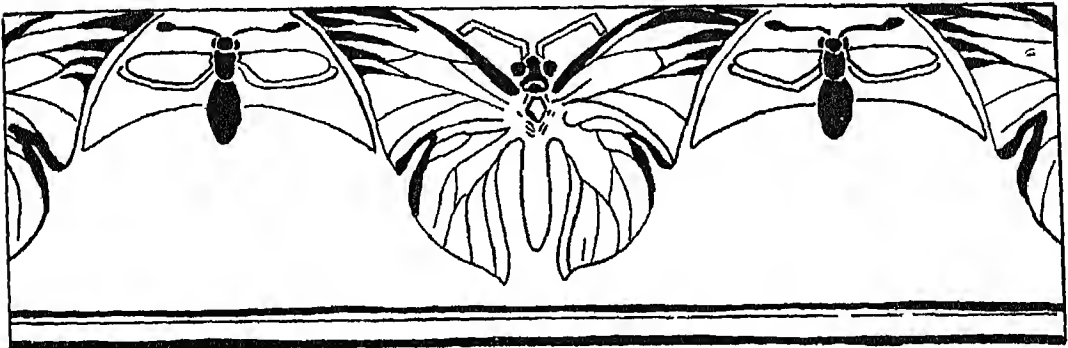
- (4) The wind shakes the tassel and blows the pollen away.
- (5) The stamens have long stalks so that the pollen is easily caught by the wind.

III. Let the children draw and label a single flower.

IV. Further work.—Notice in the next week or two how quickly the fruits begin to develop, even while the flower leaves remain. Bring them in at various stages. Notice when they begin to change colour

Encourage the children to look out for flowers on trees, and to enter on their Flower Chart which are green and which are "blossoms"

XVIII. THE CABBAGE WHITE BUTTERFLY



POINTS FOR THE TEACHER'S CONSIDERATION

AT this stage the two characteristics of the life of insects which particularly interest children are the changes of form in the course of the life history and the relation to plants, and especially flowers. It is these two points, therefore, which should be concentrated upon in early lessons on insects, although the teacher should know something of the important place held by insects in the scheme, or, as Sir Arthur Thomson calls it, in the "web of life"

It is thought that somewhere amongst the lowly members of the group of Worms a divergence of form took place, which resulted ultimately in the development of very highly organised races of animals which spread from water to land. Man and the Birds represent the highest points reached by the Vertebrates,

and Insects the highest point of the Invertebrates. These highly organised animals mastered not only the habitable land but also the air. When an animal achieves the power of flight, it needs to be able to obtain large supplies of oxygen to provide it with sufficient energy. This must penetrate all the tissues of the body, and reach every muscle. In the case of insects, the whole body is penetrated by a system of tubes, consisting of a pair of long tubes running the length of the body, called *tracheae*, which give off branches to all parts. The tracheae are connected with the surface by means of short lateral tubes, opening by pairs of *spiracles*, usually on each joint or segment. Generally telescopic movements of the segments assist in

pumping air into the tubes. The spiracles are closed and the air forced into the finer branches.

Insects belong to the group of Invertebrates called *Arthropoda*, because they have jointed legs. The whole body and legs are encased in a horny skin of a substance called *chitin*, arranged in overlapping plates on the upper and under sides of the body and round the legs. The body is divided into, usually, thirteen segments, covered with these plates. These are usually partially fused together, so that three distinct regions are formed.

The head is hard and smooth, provided with eyes, a pair of jointed feelers or *antennae* also covered with chitin, and three pairs of jaws varying in pattern according to the method of feeding. Although these structures are called jaws, they are not inside but outside the mouth, and are more like tiny modified legs, but with biting or gripping edges, or transformed into sucking tubes or pumps. They are arranged in pairs on either side of the mouth, and if they remain separate, work sideways, using the rigid head as a fulcrum against which to work.

The thorax consists of three partially fused segments, and supports three pairs of legs and the wings. The armour of chitin, besides protecting the internal parts of the body, serves as an external skeleton (or *exoskeleton*) to which the muscles are attached and upon which they work. It will be seen that in all flying insects, and they are the majority, it is important that the wings shall work from a rigid base. This is provided by the fusion of the chitinous plates covering the thoracic segments. It will be noticed that this part of the body is usually the thickest in insects. This is because it consists largely of the strongly developed flight muscles (especially noticeable in the Hawk Moths and Dragon Flies, the latter being insects of prey in their habits in relation to other insects, and swift, strong fliers).

The abdomen is the remaining part of the body, usually with the segments free. It

has no legs or other appendages, except, possibly, on the last segment leaf-like or thread-like outgrowths called styles.

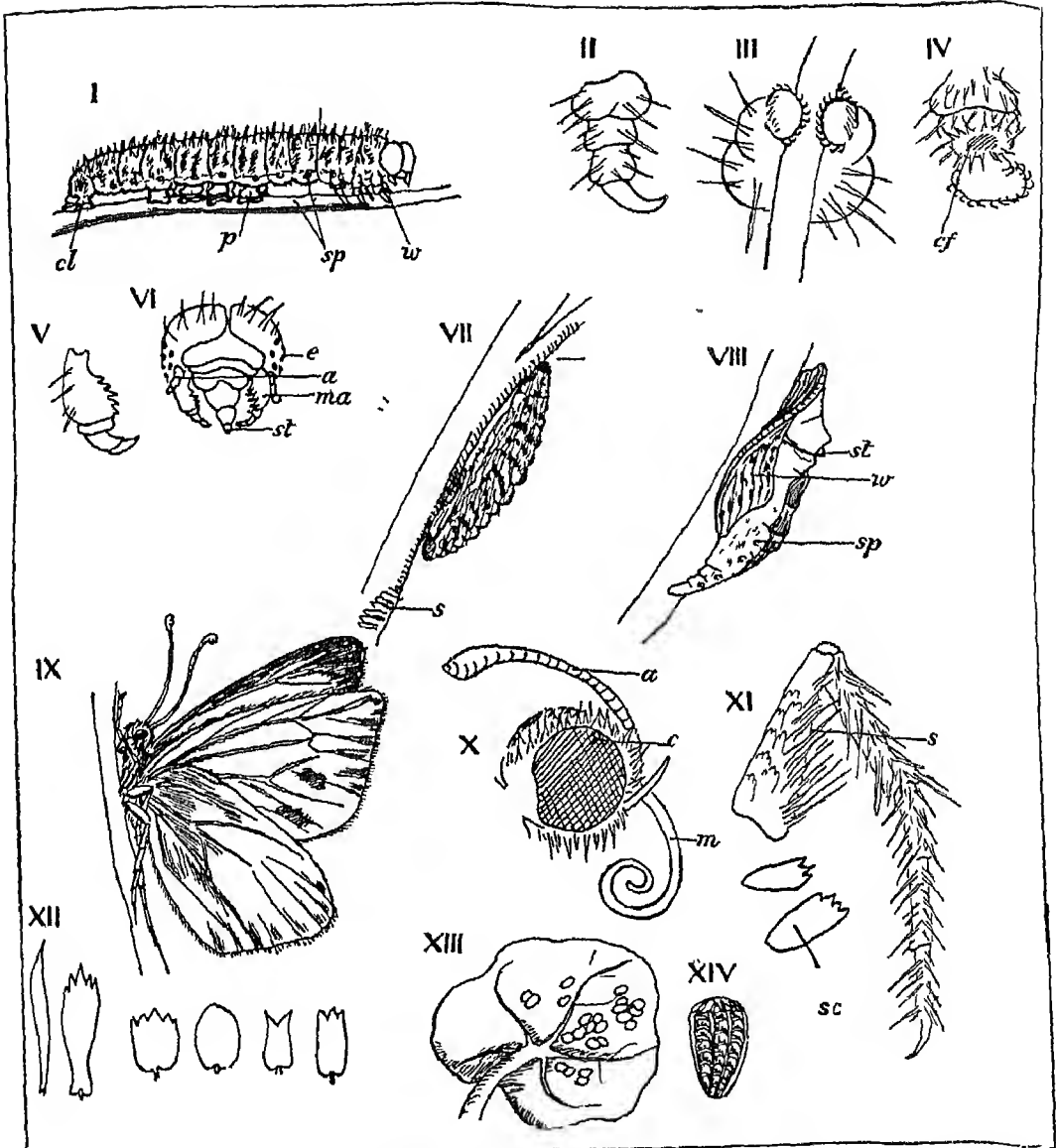
Specialization for flight is helped by the peculiar division of the life history of insects into three distinct phases, so that different activities can be carried on at different periods. In the butterflies and moths the egg hatches into a *larval* stage, the caterpillar, which devotes itself entirely to feeding. (Larva = a young stage which differs in structure from the parent, e.g. a tadpole, a "maggot" or "grub," a caterpillar.) From time to time it sheds its skin, and in the interval grows larger. The new skin then hardens.

When large reserves of food have been stored the caterpillar passes into a resting stage or becomes a *pupa*, the *chrysalis*. Although quiescent, this is in reality a time of great internal change and strain, and there is a high mortality. The whole caterpillar body is reorganised. The pupa is covered by a horny skin, through which, if no cocoon or wrapping is formed, the wings and legs of the developing butterfly can usually be seen, pressing upon it.

The pupal skin is cracked and the fully developed butterfly or moth emerges. This is called the *imago*. It is free to fly, and its only duty towards the race is to lay eggs. Curiously, in many insects, this duty absorbs the imago life completely. The power of flight enables the insect to select a suitable spot for its eggs, and after laying them, the majority die, though late broods of butterflies and moths, e.g. the Small Tortoiseshell Butterfly, hibernate till the spring before egg-laying. In some of the gnat-like insects the imago is even unable to feed because it has no mouth.

The wide range of food chosen by insects, both in the imago and the larval stages, gives them their economic importance. Many of them become plant pests, by stripping leaves, burrowing into wood, and causing deformities in growth. Others become animal pests, feeding upon their blood and in some cases on living and

PLATE XIV



I Caterpillar *cl*, clasper, *p*, prolegs; *w*, walking legs, *sp*, spiracles II Walling leg of caterpillar III Clasper seen from underneath, showing how it is used IV Proleg seen from the side showing the cushioned foot (*cf*) V Head of caterpillar *e*, eyes (6 pairs), *ma*, mandible, *a*, antenna, *st*, spinneret VI Silk ladder VII Chrysalis, *st*, ring of silk, *w*, wing, *sp*, spiracle IX Butterfly X Butterfly XI Fore leg of butterfly *s*, stiff bars, *sc*, scales XII Eggs on the under surface of a nasturtium leaf XIV Egg (x 25)

injecting the germs of disease, such as Sleeping Sickness and Malaria. The Ichneumon flies make a speciality of laying their eggs in the bodies of grubs, thus they may be incidentally useful to man in checking certain plant pests, such as the Larch Fly and the Cabbage White Butterfly, which is particularly liable to be attacked by an ichneumon whose small yellow fluffy cocoons cover its surface in the late autumn

THE LESSON

Aim.—To study the life history of the Cabbage White or Large White Butterfly

Material.—If possible the eggs should be looked for in May and August, and kept so that the development can be watched before any lesson is taken. They occur as neat little patches, regularly arranged, rather flat, greenish white, on the backs of cabbage leaves. They will hatch out if kept in jam jars with gauze tied over the mouth, and if supplied regularly with fresh cabbage, will develop easily. From time to time they will cast their skin.

The caterpillars, well-grown, can usually be found amongst the outer leaves of cabbages by the middle of June. They will continue to grow and shed their skins in captivity. A jam jar containing a caterpillar and some fresh cabbage leaves should be available for every two children.

Introduction.—If the caterpillars have been watched from the egg, tell the children that they are going to put together all the things they have seen.

If they are newly brought in, tell the children what they are and give them time to watch them. Let them be put out on to the desk or a saucer with the leaf, to be watched.

I. Let the children describe what the caterpillars do. How they walk. Muscular movements of body. Movements of feet. Movements of the head, and pair of tiny

black jaws, by which it seems to feel its way and decide which way to go.

Notice the feet. Three pairs of small black pointed feet underneath the body on the three joints just behind the head. It often rears its body up and feels round with these. Further back, other feet, of a different shape, short and stumpy.

How many, and on what joints? (Four pairs, then a gap of apparently one joint, and an end pair on the last joint.) The four pairs are called *prolegs*, and the end ones *claspers*, and it can be seen that they grasp the edge of the leaf and help to support it and drag the body along. The three front pairs actually walk, or make the new steps. The claspers and prolegs magnified, show tiny hooks.

II. Notice the colouring. The body is green, shaded on the sides with yellow, and dotted with minute raised black spots (tubercles) from each of which springs a stiff short hair.

III. Let the children make an enlarged drawing, at least three inches long, to show the body, with its segments, the legs, the head, the tiny black jaws. Indicate actual size by a line. (The eyes and short antennae are too small to be seen. The sides of the head, which are large convex swellings, should not be mistaken for the eyes.) A separate large drawing of one walking leg, one proleg and one clasper should be made. Part of a cabbage leaf may be drawn before and after a caterpillar has fed upon it, to show the bites it has taken.

IV. While the children are drawing, take small groups round the table to show them how the caterpillar responds to the stimuli of light, heat, sound, smell. It is probable that the first set of drawings will not be very satisfactory, and that in a second period, after discussion and illustration by blackboard diagrams (which should not be left to be copied), the children will make better attempts. This will give the teacher

time to complete her groups round the table. Or two or three small groups can be provided with the simple apparatus needed, and given instructions, and allowed to carry out the following little experiments, if the arrangement of the room makes it possible

1 **Smell.**—Place several (about six) active caterpillars on a shallow dish or plate on the table. Hold a glass rod dipped in some strong-smelling fluid such as turpentine, methylated spirit or dilute ammonia, in front of each in turn for long enough to see if they make any response by turning towards or away from it. Take a clean rod and rub it well with cabbage and repeat. Try other vegetable juices such as carrot, onion. Then place round the edge of the plate some pieces of leaves of cabbage, cauliflower, mustard, wallflower, or other members of the *cruciferae* family (*Cruciferae*) among which these caterpillars feed, and see if they will find them.

2. **Sound.**—See whether the caterpillars make any movements in response to tapping, ringing a small bell, blowing a whistle.

3 **Sight.**—Take a shallow cardboard box to form a tunnel, with a small opening at each end, and cover the caterpillars with it. See whether they crawl out. Flash a small electric torch into it, first at one end and then the other. Then take a small tin or wooden box and divide it into two chambers. Cut out about half the lid to fit over one and cover it with thin muslin to admit light. Leave the other side so that when fitted on to the box one chamber will be quite dark. Put cabbage leaves into both chambers. Cut a small opening in the partition so that the caterpillars can get into either side. Put half the caterpillars into each and leave till next day. The same device could be used with both sides either light or dark, to see whether caterpillars will feed more in light than in darkness. Food may be placed in one side only, to see if they will find it by smell. The senses are not acute, hence the

importance of the mother's choice of the food plant.

V. Further development.—Records of growth, changes of skin, and the change from caterpillar to pupa should be made on a Nature Chart. A chart might be kept for Butterflies and Moths only. If possible the actual stages in pupation should be watched. The pupa and the butterflies, male and female, should be drawn. The butterflies can be obtained after they have laid their eggs, when they die. They will keep for a long time, with a few moth balls in a tin box. Each should be pinned on cork, cheap round mats are useful for this purpose. When the caterpillar is full grown it ceases to feed, and can be removed to a small wooden box with two sides covered with net, or to a plant-pot saucer over which a framework covered with muslin or net is erected, thin enough to be seen through. Here it will find a corner, and begin to weave from its mouth a thin mat of fine white silk threads, drawn out by first pressing the head against the surface and then gently swaying it backwards and forwards, pressing the silk down from point to point. This mat passes under the body. A girdle of several threads is then woven across the middle of the body, so that the caterpillar is surrounded by a loop. If it is in a crevice its head will usually be directed upwards, if not, it may be head downwards, swinging in its loop. Often in the autumn the second brood of caterpillars come in from the garden and climb up walls, pupating high upon the wall or in the crevice of wall and ceiling.

The body now stiffens and shortens, then the caterpillar skin splits behind the head and is wriggled off. Inside it is a pale greenish yellow or cream-coloured pupa, powdered with black dots. It is angular, ending in a point back and front, and ascending steeply to a peak behind the head region. On either side, about $\frac{1}{2}$ inch from the front, there is also a pointed projection. At first the skin is quite soft, and the

abdomen makes gentle movements, especially if touched, but after a time it becomes quite stiff and passive. As the skin hardens it adheres to the surface below it by the "tail."

The impression of three pairs of long, delicate legs and the nervures of folded wings can presently be seen on the sides and ventral surface of the body. One might be detached to see them, but the chrysalids should never be detached if you wish the butterflies to emerge. Ultimately, the skin of the pupa splits behind the head, and the full-fledged butterfly struggles out, but if the pupa is not firmly wedged (cf. the germination of seeds) it has great difficulty in pulling itself out and is likely to injure its wings in the process, so that it is unable to fly.

As the butterflies emerge, they should be transferred to a jam jar or breeding cage, where some of the food plant of the caterpillars has been placed. They should also be given a spray of flowers, brushed with a little honey and water or treacle and water for food, or the leaves may be brushed. Here eggs will readily be laid, and if both males and females are present they will be fertile, and any stages of the life history missed at the beginning can be filled in now. This would be about the beginning of the autumn term.

A useful breeding cage for any moths and butterflies can be made from a box 8 or 10 inches wide with the top and bottom replaced by either glass or net. If glass is used, then a panel of perforated zinc should be let into one of the sides for ventilation. The glass should slide in and out, for handling and cleaning, and is turned upright to form the front. A little shelf should be fitted inside, about $2\frac{1}{2}$ inches from the bottom, with two holes bored in it to take the stems of plants. Under the shelf small dishes of water can be placed, and the stems passed through into them. This obviates any danger of the caterpillars falling into the water. If the box is enamelled white inside it is easily kept clean with a damp cloth.

White paper can be placed on the shelf, perforated by the stems, and changed every day. The whole life history can be watched in such a "home." Another good breeding cage consists simply of a plant pot of damp soil with the food plant stuck into it, covered by a lamp chimney of the straight, wide kind, or a round lamp shade of clear glass, with the top covered by fine net, which may be pasted on. The lower rim is wedged in the soil.

VI. Outdoor work.—In addition to watching the development in the classroom, the children should hunt for the eggs and caterpillars themselves, notice what plants they frequent, and watch the butterflies. They should notice what flowers they visit, and if the children approach quietly, they can often see the coiled, spring-like tongue or *proboscis*. It is really a fine tube made from a pair of grooved jaws fitting together. It shoots down to the nectary of the flower. Notice how long the butterfly visits one flower, and the tendency to seek out flowers of the same kind, perhaps by recognising both colour and smell.

The children can notice the marking of the butterflies. They are cream colour, not quite white, with a black margin to the front edge of the front wing and two black spots in the female, and a smaller black margin on the back wing. When they rest on a flower it is possible to see the slender black body, six long slim black legs, and furry head with a short projecting beak (really a sensory part of the jaws, called the palps). Notice that butterflies' wings meet over the back when at rest, showing the underside, which, in this case, is a cream colour or yellow shaded with a dusky greenish film, and on the fore wings are two black spots. As it rests on a flower, the two long, slender black antennae can be seen quivering, and occasionally touching the flower with the little black knobs at the apex.

Notice the light, fluttering flight and the delicate and yet sure way in which they

come to rest on a flower. These points can best be called to the children's attention at odd moments and in informal discussions in connection with entries on the Butterfly Chart.

The Small White Butterfly is very similar to the larger one except in size, but is without the black spots, and shows very slight black marking. The caterpillar is green, with yellow stripes, but not hairy. It is found in the hearts more than in the outside leaves of Cabbages and Cauliflowers, and feeds on Nasturtium and Mignonette, besides other Cruciferae. The chrysalis is greener and smaller, but has much the same shape as the Large White.

The Brimstone Butterfly is another close relation. Its wings are bright yellow, marked by an orange spot on each hind wing.

The Small Tortoiseshell is another butterfly whose life history is readily studied, as the caterpillars feed on the common nettle. The young caterpillars are found in large numbers on the *backs* of the leaves in June and August. They are black at first, but shed their skins frequently, and become yellowish-green after several moults, then dark green or dark brown, with a double greenish-yellow stripe along the back, one along each side, and short yellowish-green spines. The head

is black and bristly. The chrysalis is shaped rather like that of the Cabbage White, with short projections on the head, but is brownish in colour, with gold spots on the underside. The butterfly is one of the first to appear in the spring, and on warm days in winter, as it hibernates. It is common. The rich warm red and orange colouring attracts attention, and possibly warns birds that it is *not* good to eat. The front wings are reddish orange, darker at the base. Along the front edge are three square black spots separated by two yellow ones, and ending in a white one on the outside. The hind margins of all four wings are black, with a row of bright blue crescent-shaped spots. The fore wings are, in addition, marked with two small black spots, and one half black and half yellow, while the hind ones pass from black at the base to yellow at the margin.

The Large Tortoiseshell, similarly marked, has a caterpillar which feeds on Elm and other trees. It is now rare.

The Peacock and **Red Admiral** belong to the same little group of autumn-hued, beautiful butterflies, the Peacock is known by its bright peacock-eye on the wing, the Red Admiral, by its diagonal bars of terracotta red, white and black.

XIX. THE MAGPIE MOTH

THE Magpie, Gooseberry or Currant Moth is one of the commonest ravagers of soft fruit bushes. It is also very fond of the evergreen Japanese Spindle or Japanese Euonymus.

The method of study would be the same as already suggested for the Cabbage White Butterfly, but this moth offers some interesting points of contrast in the details of its life history and habits, as well as illustrating

the chief general differences between Moths and Butterflies.

Generally speaking, Moths have broader, thicker bodies than Butterflies, and the antennae are never clubbed (ending in a knob) but are either feathered or saw-like, tapering to a point. The wings are not closed over the back when at rest, but lie in the same plane as the body, forming a triangle with it. The wings are often

downy, covered with fine hairs instead of close-fitting scales as in the Butterfly. Moths usually fly at night or in the dusk, though this does not apply to all, and frequently feed on very pale, evening-scented flowers with long closed tubes, such as Honeysuckle, Evening Primrose, and the Tobacco Plant, *Nicotiana*. A comparison of the habits and life history of the two types might be made when the studies are fairly advanced

Life History of Magpie Moth.—Many of the moths seem to pass the winter in the pupa stage, hatch out, and lay their eggs, which are golden yellow with a slight depression in the middle, and arranged in small regular batches on leaves and stems of food plants. The minute black caterpillars can be found in May, held together by a loose, dusky and unsightly web spun by themselves. They shed their skins several times, and with each change begin to show more of the characteristic colouring. When about $\frac{1}{2}$ inch long they separate and wander away to feed alone, though there will generally be a large number on one bush. The ground colour is creamy-white, with a row of square black spots on the back, and smaller black spots along the sides, arranged above and below an orange stripe, so as to give it a broken, mottled effect. It is what is known as a "looper" caterpillar, because it progresses by arching the body, and straightening it again. Its first of all moves forward by waving its head and thorax in the air, then, carefully placing the three pairs of feet, it contracts the muscular body, clasps its two pairs of prolegs round the stem, and brings the arched abdomen forward till these are close against the walking legs. It then holds by the last claspers and straightens the body forward again. These caterpillars are also known as "geometers" (earth-measurers) because of their way of appearing to measure each step as if with a mathematical instrument.

If the branch is shaken or the caterpillar is in any way startled, the caterpillar emits a

silk thread from its mouth and, holding on to it with its jaws, allows itself to drop. It will then either climb up the thread again, using its thoracic legs and apparently eating the silk, or it will swing to a new support. It also uses this method of finding a new part of the food plant when one is exhausted.

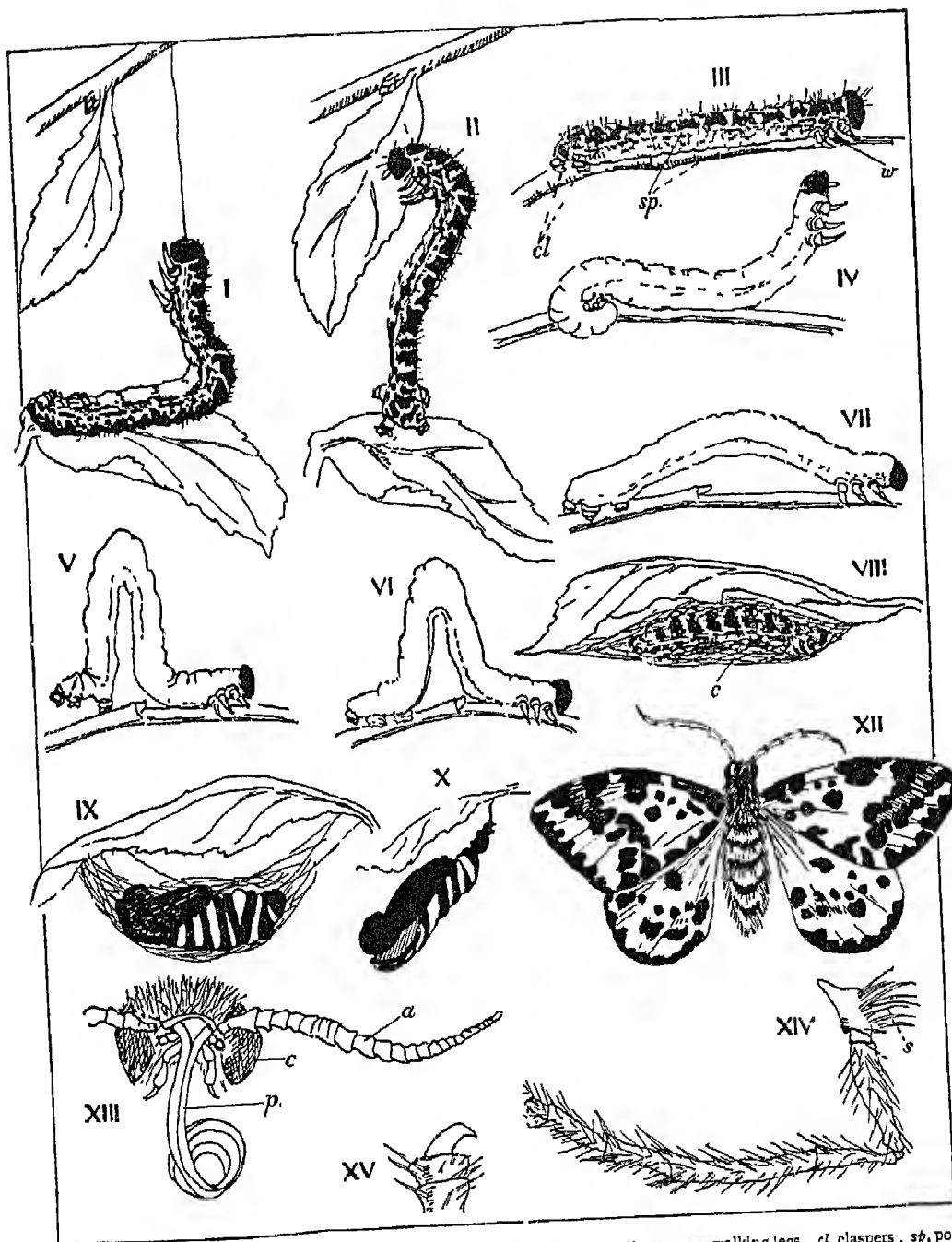
When the caterpillars are fully grown, about the end of June, they prepare to pupate. They stop feeding, but remain among the stems of the food plant, often in the axil of a leaf. The body stiffens and shrinks. A few threads are loosely woven, forming a little net which partly encloses it.

It then casts its caterpillar skin, which splits on the back of the thorax, and apparently eats the greater part of it, as very shortly afterwards the hard black head only can be found. (This is a point that needs verification.) A short, oval pupa, less than half the size of the caterpillar, is then revealed inside. This is at first golden yellow, but in a few hours becomes banded with black. The black rings are narrower than the yellow, and the whole effect is wasp-like and repellent. It seems as if here, too, is a creature which warns the birds that they will not like it, for all through its life its colours are startling, and black and yellow are recognised everywhere as implying warning. I have tried to get chickens to eat the caterpillars but they would not touch them. Here, again, is a point for experiment.

At first, as in the Cabbage White, the pupa is sensitive and mobile, but in a day or so it hardens and is quite dormant. In about a fortnight (mid-July) the moths emerge, and may be found flying in July and August. They will readily lay eggs in captivity if kept as suggested for the butterflies.

The moth, when at rest, spreads its wings rather widely. They are creamy-white, with a yellow curved band parallel with the outer edge of the front wing, and mottled with black. They are very variable, and some of the varieties tend to become constant in different localities. The variation is in

PLATE XV



I, II Caterpillar climbing back on to leaf by means of thread III Caterpillar stationary *w*, walking legs, *cl*, claspers, *sp*, position of spiracles IV, V, VI, VII Positions when moving forwards VIII Caterpillar awaiting change to chrysalis *c*, cocoon IX Chrysalis X Empty chrysalis case XII Moth XIII Head of moth *a*, antenna, *p*, proboscis, *c*, compound eye XIV Fore leg *s*, stiff hairs XV Claw

the amount of black pigment, so that some of them are very pale, the colouring being sparse and light, while others are thickly covered with black spots merging into one another. Notice the resemblance between the colouring of caterpillar and moth.

There is no difference in colouring between male and female, but the abdomen of the male is more slender and ends more bluntly, the female being pointed.

The chrysalids can be kept through the winter in shelter, and can be found amongst the sheltering twigs on the bushes occasionally, or dropped amongst the dead leaves.

The Common Tiger Moth.—Another caterpillar frequently found in May and June is that of the Common Tiger Moth, known as the "Woolly Bear," a striking and handsome creature two to three inches long, with long dark "fur" of rich red, brown and black. Often the hairs are nearly half an inch long. It lives and feeds amongst long grass, and low-growing plants such as dock and nettles, and is quite common in town gardens and neglected waste places in the suburbs. It is easy to keep in the classroom, if it is given fresh supplies of food. For some reason it seems chiefly to be found fully grown, perhaps because it is so well hidden in the tangle of weeds, and also because the eggs are laid late in the year and it hibernates as a young caterpillar.

Actually the body is black, with whitish tubercles bearing long black hairs tipped with white or buff. On the second and third segments these are reddish-brown. When it is ready to pupate it stiffens and loses its hairs, then splits the larval skin, and inside is a black, glossy cocoon, usually found lying on the ground or under stones.

The moth is one of our most handsome kinds. It has a red abdomen marked with black, dark velvety brown fore wings interlaced with cream or white spots and streaks, and orange red hind wings with dark spots. It is $2\frac{1}{2}$ –3 inches across the wings, the female being the larger. The moths are stout-bodied and hairy.

The Drinker Moth.—This is also frequently met with in May and June in the same kind of surroundings as the Tiger Moth caterpillar, in country lanes. It feeds on grasses, and gets its name from the habit ascribed to it of drinking the dew. At first sight it is similar to the "Woolly Bear" but lighter coloured, giving an impression of being brown, with shorter hairs. Actually, the body colour is a smoky blue-grey, with light brown hairs. It has a row of yellowish spots on either side of the back, and orange spots marking the spiracles, with short tufts of white hairs. On the first segment, and also near the end of the body, it has a prominent tuft of black hairs. Like the Tiger Moth, the caterpillar sheds its hairs before pupating. They are incorporated into a loosely-spun oval cocoon of a light brownish colour, in which the pupa is hidden. The moth has yellowish, buff-coloured or cream-coloured wings, with two white spots on the fore wings, and both fore and hind wings marked by dark lines. They emerge from the cocoons about July, and lay eggs amongst grasses. The young caterpillars hibernate.

Both these caterpillars have sixteen legs (with the claspers), and they are not "loopers," that is, there is not a long gap with only two pairs of claspers. Their movement appears to be on the principle of a continuous chain, for an even ripple of contracting and expanding muscles seems to pass from the head to the tail, and begins again before it has finished, while it grips the surface to pull itself along with all its feet in turn.

Notice that in all progressive movement, as these caterpillars illustrate, two factors come into play, a grip and a pull forward. Pulling alone, i.e. muscular contraction, is useless.

It is a good plan to let the children watch several common moths and butterflies, whichever are easiest to obtain. Even if there is difficulty in identifying them, the children are still interested in watching them, and get some idea of the variety of food,

habits, and colouring. It is desirable to have a good reference book which the children can get at, from which they can try to identify their discoveries at first from coloured pictures, and later from the descriptions. Always impress upon them the need for noticing and bringing a supply

of the food plant, and as in previous lessons on keeping animals, discuss with them the conditions necessary for a home (to which ease of cleaning should be added in the case of caterpillars), before letting them attempt to keep caterpillars through their successive stages.

XX. CLIMBING PLANTS

A SUMMER visit to the hedge should be arranged if possible, to notice its characteristics in its fullest life. The plants found in flower would be noted, and all others recognised as far as possible. Birds and insects, especially butterflies and caterpillars, would be named and caterpillars collected. Perhaps the climbing plants might receive particular attention, their various means of clinging to the hedge might be observed and discussed, their height noticed, and especially in what position on the hedge their flowers occur and whether they seem likely to be insect-pollinated. Three kinds might be selected for more detailed study, and others might be collected later if time allowed or the interest of the class made it seem desirable.

THE LESSON

The plants chosen might be Bramble or Wild Rose, Black Bryony, or perhaps Convolvulus, and Goose Grass.

Aim.—To examine in detail the means of climbing of these plants.

Material.—Enough for the children to share between two, and for half the children at once to have one kind, then share; that is, for forty children, ten sprays of Bramble and ten of Black Bryony, and the same of Goose Grass. A few flowers of each if the flowering season is chosen, or the flowers

of Bramble may be shown later in the summer. A few sprays which have not yet caught a support, for the children to examine, on the table.

Introduction.—Recall to the children, by questions, how the plants were growing. They were chiefly on the surface of the hedge, in the case of the Bramble, in the Bryony they might be farther in to begin with but came to the surface later, so that all their leaves and flowers were exposed to the air and sun. In the Goose Grass they were more under the hedge and did not climb so high. Recall how the leaves lay flat against the hedge, fully turned to the light. In Goose Grass they are narrow, air and light can pass through between them.

I. Let the children then try to draw enough of each plant in turn to show how it climbs, and to write beside it what they notice on this point.

II. Take each plant in turn and discuss it with the children.

The Bramble.—Notice that it climbs by means of small, sharp hooks, arranged in rows all round the stem. We call them prickles. Let each child strip off a little of the skin with a needle or penknife, and see that the prickles come away too. So they are formed from the skin. They are very hard and woody. How do they

manage to cling to the hedge? They all turn downwards, and so when they catch on to other stems they pull downwards and so become hooked on. The ends are straight and smooth-stemmed, the prickles form just a little way back. The straight stems look as if they were feeling round for new holding-places, and when they touch anything the hooks catch hold. Sometimes they stretch out and root in the ground some distance away from the hedge and there new plants grow. There are also small hooks on the backs of the leaves.

The Goose Grass, too, seems to have little hooks, but they are so small we can only feel them. We can just see little roughnesses. They are under the leaves, too, and the whole plant seems to hook itself on to branches as it pushes its way straight up under the hedge. (Remember the hooked fruits.)

The Black Bryony has long stems bearing beautifully marked, glossy dark-green leaves shaped like arrow heads. We frequently find several stems growing together and

twisting round one another, forming a sort of rope. They also twist round branches in the hedge, pulling themselves up to the light by this means. The free end of the stem will be seen to bend over to one side, because the stem is weak and cannot support its weight, and as soon as the stem is bent over far enough to touch anything it begins to twine round it. Notice that in all these plants the stem is too weak to support itself, though in the Bramble it is stronger than the others.

III. Make a short blackboard summary with the children

1. Black Bryony is a stem-twiner
 2. Goose Grass and Bramble are hook-climbers. The hooks are prickles, formed from the skin.
 3. All the stems are too weak to support themselves.
 4. In Bramble and Bryony the leaves and flowers grow right on the outside of the hedge, turning to the light.
- The children might either copy this or try to write the main points from memory in their own way.

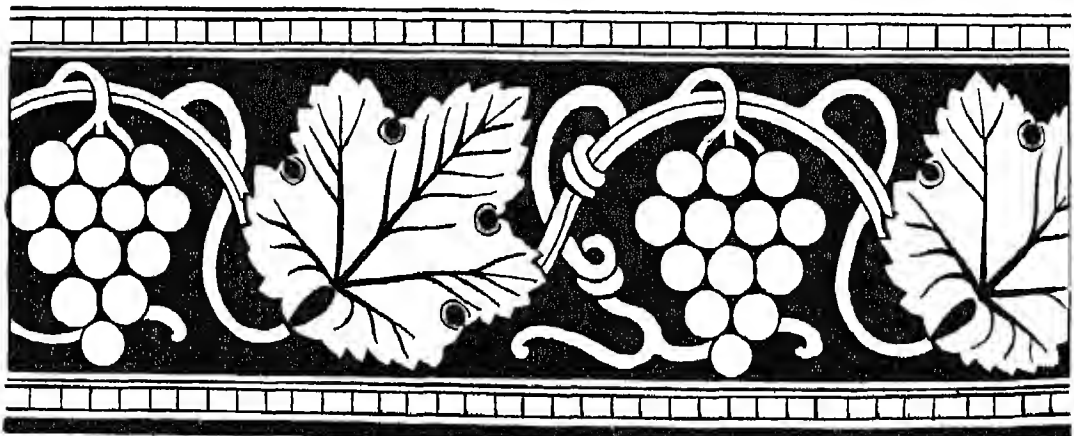
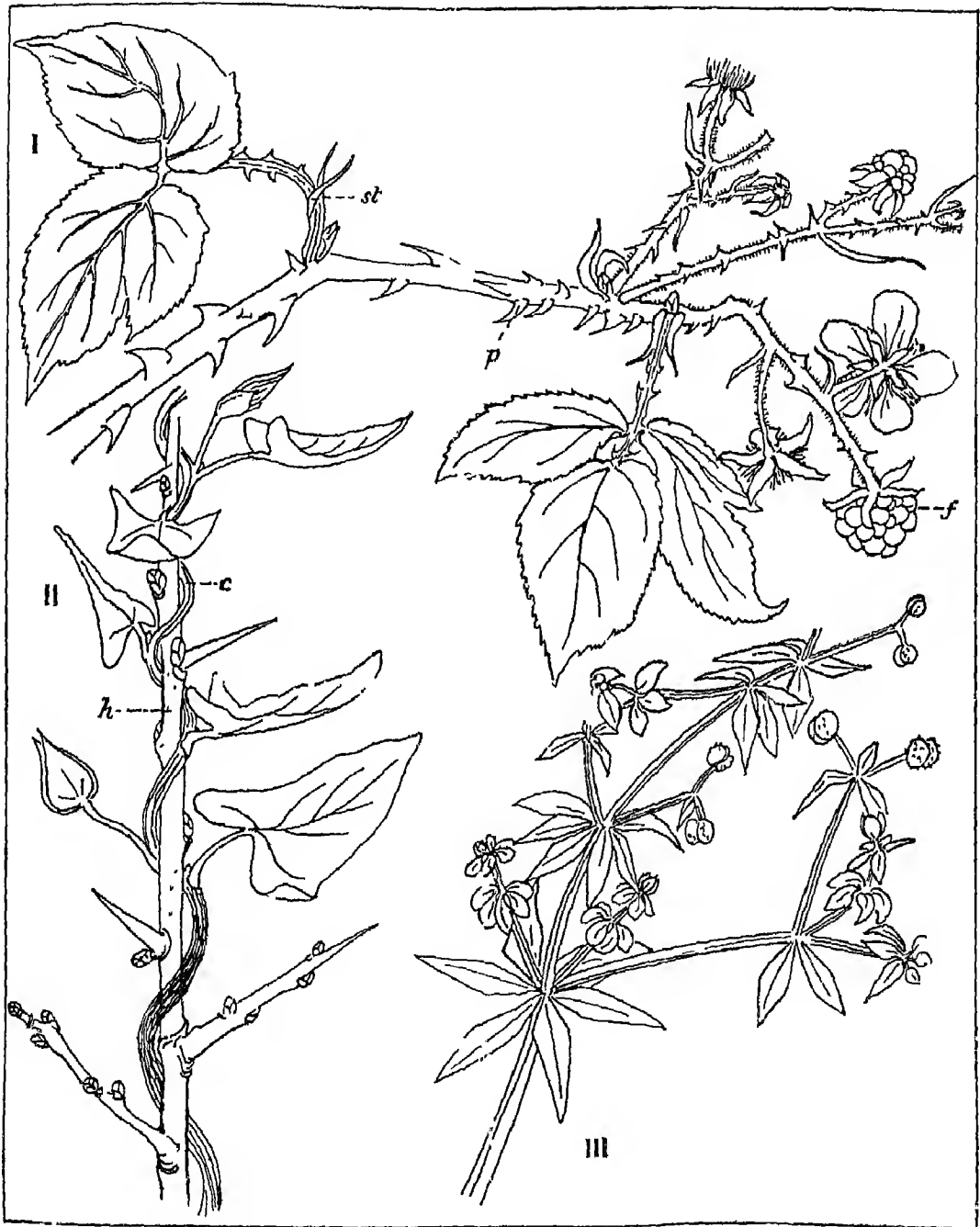


PLATE XVI



I BRAMBLE, showing recurved prickles (*p*), fruit (*f*) and stipules (*st*)
 II CONVULVULUS (*c*) twining round a hawthorn branch (*h*) in anti clockwise direction
 III GOOSE GRASS, showing heads on pedicels

THE TEACHING OF GEOGRAPHY
IN THE
PRIMARY SCHOOL



ST PAUL'S CATHEDRAL

[Central Press

GENERAL INTRODUCTION TO THE FOUR YEARS' COURSE

A KNOWLEDGE of geography broadens the mind and makes the world more attractive to us. It is stimulating, interesting and instructive to know something of this earth on which we live, of the different ways in which people occupy their lives, and of the animal and vegetable kingdoms around us, as well as of those in unknown countries. The world is to-day a more wonderful place than it has ever been. The marvels of modern science have made neighbours of regions far removed from each other. Deep-sea cables and wireless messages carry men's voices across the oceans. Great steamers plough their furrows from East to West and from North to South, interchanging cargoes, and supplying the wants of nation dependent upon nation. Engineers probe the earth for its riches, bidge mighty rivers and tunnel mountain barriers. Scientists fight the germs of disease and make regions habitable that once were deadly. Ever more and more, luxuriant wild nature is being replaced by plantations of trees useful to man, and desert lands are brought "to blossom as the rose" by careful irrigation. Among all, quietly making pictures, goes the cinematograph photographer, presently to record the marvels before a million wondering eyes. All this, and a great deal more, is geography. How can it be introduced and made intelligible to the minds of young children?

Some difficulties—Scientific lessons on mountains and rivers are useless to young children, and the memorising of facts alone is time wasted. The seasons as months of the year are so many names. Nevertheless, summer, to a child, stands for warmth and sunshine, winter for frost and snow. Therefore the best way of tackling the problem

of teaching geography in the primary school is to proceed from the known to the unknown. First stimulate an active interest in everything around—in the shops, the roads, the winds, the sky—and encourage enquiry and reasoning. Which wind generally blows when rain is falling? Why is it often wet on the hills and dry in the flat meadows? What does the sun appear to do every day? Which part of your district must you climb to reach? Approached in any other fashion, the ideas of rainfall, relief, and relation of earth to sun, are uncomprehended. Observation of goods in the shops reveals our dependence upon other lands. A friendly chat upon different habits and hobbies of children who are neighbours opens out the possibilities of vastly differing lives and habits of children far away. Introduced in this manner, foreign countries and peoples are *real* to children.

World treatment.—It is essential that the pupils' ideas of the world, however new, should be clear. The teaching should be built up on broad outlines and salient facts, with no confusion of detail. That is to say, the world treatment must be regional. The scheme of climatic regional treatment followed in these books covers life in the principal areas of the British Empire—cold, cool, warm, hot dry, and hot wet lands. One type of climate and vegetation, of course, naturally flows into another. World position and environment influence the homes and activities of the people, and these occupations, in their turn, create the need for interchange of productions, and have led to the establishment of great trade routes.

The home region.—This is very important. True geography is first-hand knowledge

of the world. Only the fortunate few can travel, and therefore most people have to derive their knowledge from their own district, and from books. Direct observation on which to build the teaching of geography is essential. As we have said before, the teaching in this scheme advances from the known to the unknown. Typical scenes from the main climatic regions of the world are built up, and contrasted with familiar conditions. First-hand knowledge of food and clothing gives rise to acquaintance with Indian tea, Canterbury lamb, New Zealand butter, Egyptian cotton and Canadian cheese. These, and other well-known commodities, are traced from producer to consumer, and so real knowledge is gained. Actual study of the home region begins in Volume II., with discussions upon the neighbourhood, the roads, railways and traffic, materials obtained or manufactured in the district, growing crops, observation of shadows, and if possible, the sea, tides, sirens, piers, ships and lifeboats; all these, again, are connected with stories of other lands.

Imagination and stories.—It cannot be too strongly emphasised that mere definitions in themselves convey nothing real to the minds of the pupils. All such statements should be illustrated, and it is for this purpose that we find stories of great value. The stories in these volumes are carefully chosen to convey to the pupils a conception of the more strongly contrasted regions of the world, they cover topics of interest to children, selected in such a way that while each is practically complete in itself, together they build up a conception of the world as a whole. So the pupils come to realise through the stories that there is "a certain completeness in the world." Although young children cannot learn a great deal of geography by reading aloud themselves, they can profit very much by the teacher's reading to them. In this publication, the teacher has at his disposal well-written narratives based on experience, which offer

points of discussion and are conveniently arranged in suitable lessons. Story-telling is a sure way of gaining interest, so that the presentation of lessons in story-form is a vital factor in the teaching of geography.

Pictures.—In geography lessons, good pictures must be in constant use. They also give that reality to the teaching which is essential in the treatment of the subject. In the lowest forms, the use of pictures should take the place of the globe and the map. Class pictures, to illustrate most of the children's lessons, are provided in the portfolio attached to this work. Any description that may be hazy in the pupils' minds is made clear when pictured. Illustrations of real scenery, of mountains, deserts and strange coasts, of people's occupations in hot, cool and cold areas, are of infinite value in aiding thought and memory.

Textbooks.—The secret of good teaching lies in variety of method, and any one form of presentation of subject matter soon tires and bores the class. Pupils all enjoy listening to stories, but their interest cannot be sustained indefinitely in this way. Active investigation on their part should play its share in the lessons, and one way of ensuring this is by the use of textbooks. In the lower forms, these should be profusely illustrated. Later on, the books should contain lively descriptions to supplement the oral lessons. Textbooks are also useful for revision, and, in the upper forms, it is good training in concentration and habits of work for the children sometimes to do silent reading on fresh subject matter, and to be questioned upon it afterwards. Each form should possess its own library, and among other books may be included simple stories of animal life and tales of travel. From these, children can add to their knowledge, and improve their reading.

Questions and exercises.—Besides reading, another way of including the active co-operation of the children in the lesson is to let

them examine and compare instances for themselves. In the lowest forms the work mainly consists of oral answers to easy questions, perhaps accompanied by sketches. This is one form of revision, and a good way of finding out false impressions and mistakes. If carefully graded, the questions will assist in training the association of cause and effect, which is one of the objects of the teaching of geography. Little problems can be worked later. Simple sketch maps, plans and diagrams are all useful in fixing points in the mind, and adding exactness and reality to statements. Each child should have his own notebook, in which to take down summaries and sentences for memory work, and in which to stick cuttings, labels, picture postcards and photographs, according to the teacher's directions. Very gradually, by their own investigations under guidance, pupils will discover how and where to find in their atlases and textbooks all the facts they require in building up answers to questions.

The selection of material.—The material chosen for the study of descriptive geography in this scheme is the British Empire. There are very good reasons for this selection. In the first place, the land surface of the

globe has an area of 51,800,000 square miles (exclusive of the Arctic and Antarctic continents), and the Empire has an area of 14,000,000 square miles. Empire study, therefore, gives a knowledge of more than a quarter of the land surface of the earth. Again, the world's population is 2,200,000,000 and that of the Empire 540,000,000 *. Here is another measure of the value of Empire study, since it gives an account of the activities of more than twenty per cent of the world's population. The main factor, however, to consider is that the Empire includes lands with every variety of climate and production, and thus Empire study embraces types of every one of the world's great climatic regions and all the different occupations of mankind. The lessons have been carefully planned to give a general idea of the outstanding features of each region (often a vivid contrast to those of the district in which the pupil lives), the homes and habits of the people, and their chief activities. Thus the children gradually perceive that the regions of the world are of infinite variety, but constructed on a well-reasoned, orderly plan; by taking selected areas from the geography of the British Empire a sound knowledge of the subject is obtained.

* Figures are given in round numbers



DATE PALMS

A FOUR YEARS' COURSE OF GEOGRAPHY FOR CHILDREN FROM SEVEN TO ELEVEN YEARS OF AGE

THE general course of geography lessons prepared in these volumes is here set out for the guidance of teachers when preparing their schemes of work. Each lesson of the course of Descriptive Geography is arranged under the following headings:

Picture Reference.—A small illustration of the appropriate Class Picture in the portfolio is given at the beginning of each lesson, together with its notes and explanations.

Introduction.—This is the teacher's background for the lesson set out in full detail. The whole series of articles included in these "Introductions" covers a course of Empire Geography.

Children's Story.—The story introduced by the Class Picture is written in simple language. It can be told or read to the class at the teacher's discretion, and further details may, if necessary, be added from the

subject matter of the "Introduction." Extra stories suitable for Friday afternoon reading, or for use when occasion offers, are included in Volume VI. Questions and answers on each Class Picture and further information are provided in the Reference Book to the Class Pictures.

(For children's Class Books see page 555.)

Teaching Hints.—A series of notes and hints which will be helpful to the teacher in preparing the lesson follows the "Children's Story." Included among these hints are *Memory Work* and *Exercises*. The former consists of a few brief sentences to be copied into notebooks and used for revision, and the latter will be found useful for both oral and written work.

Blackboard Sketches.—A whole page drawing of blackboard sketches which may be easily copied is included at the end of the lesson wherever the text lends itself to such illustration.



FIRST YEAR'S COURSE OF GEOGRAPHY

Descriptive Geography.—Children and Life in the Commonwealth and Empire. Cold Lands, Cool Grasslands, Cool Lands (Industrial), Warm Lands with Winter Rain,

Hot Lands with Summer Rain, Hot Wet Forests, Hot Grasslands, Hot Dry Lands, Sunny Islands, Life on the Sea, Merchant Ships.

SECOND YEAR'S COURSE OF GEOGRAPHY

Descriptive Geography.—Life in Canada and Australasia.

Practical Geography.—

1. General Introduction. The aims of the Course and the importance of observation. The methods to be adopted in the teaching of the subject
2. A simple story of the origin and the movements of the earth.
3. Direction. The position of one point in relation to another. The use of the mariner's compass. How the sun helps us to find direction. The Pole Star and the Plough
4. Plans. The drawing of plans. Distance
5. Our Routes. The way from our town to other places. The local roads, railways, canals and rivers

THIRD YEAR'S COURSE OF GEOGRAPHY

Descriptive Geography.—Life in India, Burma and British Africa.

Practical Geography.—

1. Weather Study. Observations of rainfall, temperature, clouds and winds. How to collect data and record it. The use of the weather chart
2. Our Scenery. A study of the surrounding physical features. hills, valleys, cliffs and streams
3. Models and Maps. The representation of surface features by models, sketches and colour-tinted maps.

FOURTH YEAR'S COURSE OF GEOGRAPHY

Descriptive Geography.—The British Isles.

Practical Geography.—

1. Weather Study. An extension of the previous year's work. Reading charts.
2. Our Industries. The workers whom we know. Urban and rural studies. The destination of our surplus produce.
3. Our Buildings. Houses, factories, docks, reservoirs and other constructions associated with settlements
4. Making and Reading Maps. Extracts from the local 6-inch Ordnance Survey Map. The addition of given information to an outline map. Simple land utilisation maps. Marking the chief local industries on maps showing physical features, routes, mines, etc

FIRST YEAR'S COURSE OF GEOGRAPHY

I. CHILDREN OF THE EMPIRE

PICTURE REFERENCE

THERE are two Class Pictures (Nos 61 and 62 in the portfolio) to illustrate this lesson. The first shows an Eskimo Boy with a dog, a Canadian Boy on skis, Australian Girls with kangaroos, and two Maori Girls greeting each other. The second shows a Girl of the Sudan, a South African Schoolboy, an Indian Girl and Boy, and a Girl of Ceylon. It will be advisable to divide this lesson into two periods using one of the pictures in each period (see pp. 386-387).

INTRODUCTION

The First Year's Course of Geography is mainly intended to introduce to children of seven to eight years of age the subject of the general environment under which man lives in different regions of the British Empire. The term environment is meant to include all the surrounding conditions which influence or modify the life of man. The influences are so numerous and varied that many must be neglected in a short account. We will consider mainly the influences which affect the movement, settlement and occupations of man.

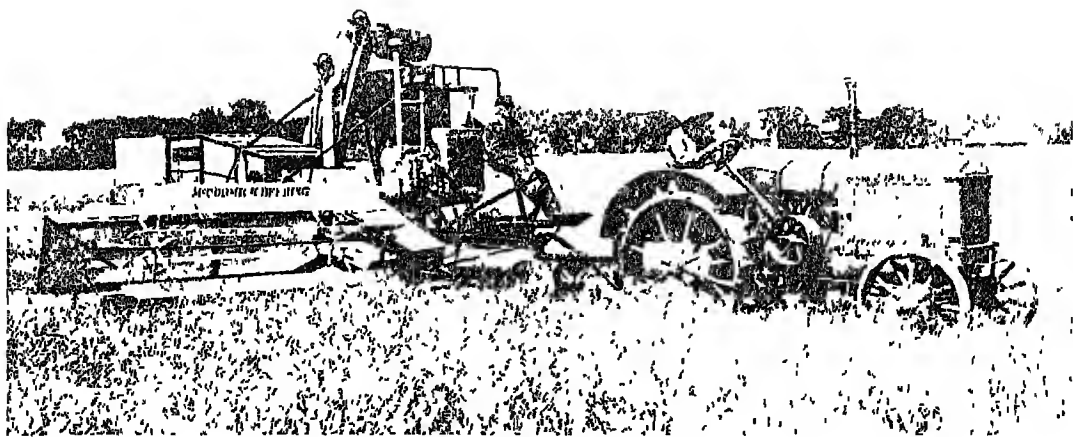
Cold lands.—The ice regions of the world offer nothing to man and attract only occasional explorers and adventurers. The climate is very severe, the surface is barren and settlement is impossible.

The so called "barren land" or tundra of Canada is free from ice and snow for a

short period each year. It offers man or animals very little food, but a few people, such as the Eskimos, and a few animals, such as the caribou (reindeer), musk ox and seal are found. The food supplies are so scarce that a nomadic life is enforced. Tundra is found in all lands near the polar ice.

Cool lands.—The forested areas of cool lands show by the presence of trees in abundance that a decided period of real summer is experienced. The more genial conditions allow the cultivation of food crops in forest clearings, and the proximity to warmer lands permits these locally prepared foods to be supplemented. The forest, moreover, supplies timber in abundance, a material which is needed in every industry of the world. Man lives in the forest during the period of the year best suited to the work of felling the trees. Usually, the trees are not felled during the summer, and the workers leave the forest for homes in adjacent regions. A settled mode of life is characteristic of the clearings in which agriculture is practised.

The grass regions of cool lands show that the summer season has again been extended and has become warmer. The wealth of natural pasture encourages the rearing of animals in order to supply man with food, wool, hides and skins. Large areas are often occupied by the owners of huge flocks and herds, and life for the men is of a semi-nomadic nature, for the animals under their care constantly need attention and fresh supplies of nature's food. In many parts of



TRACTOR AND COMBINED HARVESTER-THRESHER, ONTARIO

[E. N. A.]

the world, however, large areas of grassland are now cultivated.

Hot lands.—The great areas of hot, dry lands are practically barren. It is only where wells occur that food of any description can be produced. Wells are few and far between, and the wanderer of the desert makes these small, fertile spots his calling place in his travels in order to replenish his supplies of food and water. In special circumstances a settled life is possible in hot, dry regions. Certain mineral deposits attract man and lead to a settled life. Gold-producing regions in the dry lands of West Australia have become peopled and are dotted with large towns. The food and water necessary for life are taken to the towns by the shortest possible routes. In such cases water, once it has been obtained, is used to render the districts near the towns fertile and productive to supplement the food supplies.

The grasslands of hot countries in some respects resemble those of the cool lands. They supply natural food for certain animals, particularly cattle, and are sometimes capable of cultivation. They thus encourage both the nomadic and the settled mode of life.

One or two striking differences between the two grass regions must be noted. Sheep do not flourish in hot lands, and dairy cattle do not prosper. The hot grasslands are favourable for beef cattle, and their use for food is rapidly extending. Many of these grasslands are wet only for a very short period of the year, and without additional water supplies they are unsuited for agriculture.

Hot wet forests.—The vast areas of hot wet forests are regions of an immense variety of wealth, but they have one serious drawback as a home for man. The intense heat and heavy rainfall promote not only a wonderful mass of vegetation, but encourage, in a remarkable degree, the development of disease-carrying pests which make the region particularly deadly to man. It is not surprising, therefore, that the great wet forests are practically uninhabited, and that it is only on the edges that the beautiful timbers and other products are obtained by small bands of workers.

Industrial areas.—Gold, diamonds, tin and other valuable minerals lead to town development, however unsuited an area may



ESKIMO BOY



CANADIAN BOY



AUSTRALIAN GIRLS



MAORI GIRLS



SUDAN GIRL



SOUTH AFRICAN SCHOOLBOY



INDIAN BOY & GIRL



GIRL OF CEYLON

CHILDREN OF THE ANGLO-EGYPTIAN SUDAN, SOUTH AFRICA, INDIA AND CEYLON
(Class Picture No 62 in the portfolio)

be as a dwelling place for man, but in cool and fairly wet areas supplies of coal and iron greatly encourage the development of the settled life. The coal fields of the British Isles, the United States, France and Germany in particular have developed into large urban centres of population with vast industries.

Mountain regions.—Mountain regions occur in all parts of the world—hot, cool, cold, wet and dry. Life in mountain regions must necessarily depend upon the altitude, and the resources offered by nature. Where life is possible, it is of a settled character, since movement is difficult. Trees, grass, ice and snow are characteristic features of mountains. Lumbering, pastoral occupations, and employment resulting from the visits of tourists, provide work for the scanty population. Mining in certain regions provides an additional occupation.

The ocean.—Notice must also be taken of the vast areas of water which cover so much of the earth's surface. The water of the earth is traversed for two main reasons: (1) for purposes of trade, to carry the materials of the earth from one place to another, (2) to obtain fish as one of man's foods. In each case man lives in a movable home for the greater part of his time, but it is a home which is fixed in type. He may suffer many discomforts from storm and tempest, but he has most of the comforts of the town dweller.

The homes of man.—In studying the main regions of the world, the influence of man's natural environment has been shown to determine his occupation to a marked degree. It is similarly interesting to show that the form and character of his dwelling is determined largely by the nature of the region in which he lives. The Eskimo of frozen areas builds his winter hut of snow, while the dweller of hot forests uses leaves and stalks. In hot, swampy areas dwellings are built on poles and in trees, but in the

temperate forests log huts are the rule. In some areas of cool grasslands houses are built of earth and covered with turf, in Japan the houses are constructed with bamboo and paper. The densely populated areas of cool lands have buildings constructed of brick, stone, timber and slate, but in mountain areas stone is the chief material used. The nomad of the tundra builds his tent with poles and skins, but the nomad of the grasslands, although a tent dweller, can add to his comfort with rugs and various domestic utensils. Local material and the circumstances of the area largely determine the nature and the type of the dwelling place of man.

No matter to what degree man is influenced by the condition of the area in which he lives, life is always a struggle between man and nature. Sometimes man is the victor, but usually it is nature that is the all-powerful master. Man has achieved what at one time seemed to be the impossible. In certain parts he has made the desert fertile, he has wiped out many virulent diseases, he has conquered many physical barriers, regulated the flow of rivers, drained swamps, and planted with useful crops areas which were once covered with thorny, spiny, poisonous and useless plants. There is, however, a limit to his activities. Man has made the earth a home for man, but nature has made man what he is to-day—a creature moulded by his environment.

CHILDREN'S STORY

PART I

Show the Class Picture No. 61 and invite the class to look at it carefully and tell all they can about the children. Get them to describe the various costumes and suggest reasons why the Eskimo boy wears furs, and why the Canadian boy is well wrapped up and is sliding on skis. They should note the contrast in the dress of the Australian girls, and they will observe that this is

similar to that worn in England. The costume of the Maori girls will puzzle them and it will arouse their curiosity. The fringed dresses seem to have been made from a plant and the material has not the same appearance as cloth woven in the ordinary way. The bare shoulders of the girls show that the weather must in general be warmer than in the British Isles. One, however, wears a cloak, telling of cool mornings and evenings. She also carries a bag made of the same fibrous material, but her umbrella and smart shoes might very well have been made in Britain. The home she is visiting, too, has a neat modern appearance. Discoveries such as these made by the class form a stimulating preparation for the story to follow. Only a few points concerning each of the children illustrated

are noted in this first lesson, as they will be dealt with again later on.

The small boy who is fishing in the icy sea is called an *Eskimo*. He is well wrapped up in clothes made from the warm skin of a white bear, for the land in which he lives is very cold. He is not a white boy, for his skin is of a yellowish-brown colour, his eyes are rather narrow and his hair is straight and black. The dog by his side is a young Eskimo dog. Its father and mother, with several more dogs, are away from home running over the snow dragging a sledge behind them. The boy's father is sitting in the sledge with a sharp spear at his side. He is hurrying away to the sea where he hopes to catch a nice fat seal to bring home for the boy's dinner. Perhaps he will catch some fish, for the Eskimos eat a great deal



CLIFFSIDE SKI CLUB, OTTAWA, ONTARIO

(Courtesy C N R)

of fish. When the dog is well trained, he, too, will be harnessed to a sledge. The boy is standing on the frozen sea and has caught some fish and a crab through a hole he has made. Behind him is a hut of thick planks in a village, where his parents and brothers and sisters live in the winter. The country where this Eskimo boy lives is called Canada. It is a long way from England, but thousands of men and women, boys and girls of Canada speak English. British people can sail to that country in five days by steamship, and many fly there in an aeroplane in less than one day. It would take many days more, however, to reach the cold land where the Eskimos live, and if you did not go by airplane, you, too, would have to sit in a sledge and be drawn along by dogs. What fun it would be!

The Canadian boy is having a happy time running over the snow on skis. It is not easy to run on skis. They are long pieces of wood taller than the boy. He straps them firmly to his shoes and then slides and runs over the frozen snow. The winters of Canada are long, and deep snow covers the ground. Then the boys wrap themselves in woollen clothes and put on stout boots and warm mittens, and go out to play at snowballing, sliding, skating and skiing. If they live on a hillside, they have great fun sliding on the snow down the hill in boxes with smooth pieces of wood like skis fixed at the bottom to make the boxes run swiftly. This boy's father is at work in the forests cutting down trees. During the summer he will work in the harvest fields gathering wheat, for Canada has some of the richest wheatlands of the world. Most white men eat bread made from wheat, and much of the bread eaten in England is made from the flour of wheat grown in Canada. King George of England is also king of Canada.

A farm in western Canada is a very large place. If you visited one, you would see hundreds of cattle and huge fields of wheat and oats much larger than any such fields seen in England. Canada, you must know, is a very large country, much larger than

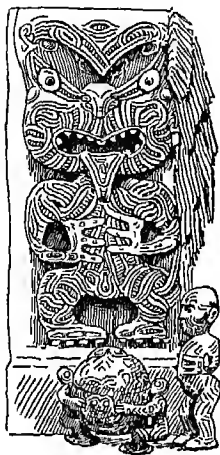
England. Parts of it, where the Eskimos live, are very, very cold, and most of it is cold in winter, but pleasant and warm in summer.

To visit the home of the *Australian girls* we should have to stay on a ship for six weeks. The land of Australia where they live is a warm country far, far away towards the south. Most people from Britain who visit there go by ship, but some like a quick journey. Then a huge 'plane will take them, passing over seas and lands of many kinds. The British were the first white people to live in Australia so nearly everybody speaks English and the king is King George. It is such a delightfully warm country that boys and girls can always dress as you do in a hot summer. Children in Australia do not often see snow unless they climb to the tops of some of the high mountains. Some of their fathers have hundreds of sheep and probably some of your own clothes are made of wool that grew on the backs of Australian sheep. Many men keep cattle, and others grow wheat as the Canadians do.

A number of strange animals live in Australia, and one of the most interesting is the kangaroo, which hops along the ground as fast as a horse can run. It has very long hind legs and short fore legs, and it uses its strong tail to support it when sitting down. (See Class Picture No. 85.)

Three days' journey by ship from Australia takes us to another sunny land called *New Zealand*. The pretty dresses of the girls in the picture are made from New Zealand flax sometimes trimmed with feathers of a bird called a kiwi. The silky threads of the flax come from plants with long leaves like ribbons. When the British first went to live in New Zealand they met many brown people in clothes of flax, but to-day they dress as we do. These people used to greet one another by shaking hands and pressing their noses together. You should try this way of greeting a friend. The white and brown people are now great friends. Both are strong and healthy, for they live in a cool land where there is bright sunshine in summer, and

where it is not very cold in winter. Many sheep and cattle are reared in New Zealand, and wheat is grown for food.



MAORI WOOD CARVING

PART II

All the countries together over which King George reigns are called the Commonwealth and Empire. We have seen pictures of the children who live in the cold land of Canada, and the warmer lands of Australia and New Zealand, we must now look at the pictures of children who live in the hot lands of the British Empire. (Show the Class Picture No. 62.) The first is a *Girl of the Sudan*, in Africa. You can understand at once that the Sudan is a hot land, for the girl wears a loose robe. Her skin is dark brown. Can you see what she is carrying? In the hot lands wheat does not grow very well, so the people grow maize to make porridge. Maize is generally called corn, or mealies. It is a tall grass plant which bears large cobs or heads in which are numbers of large seeds. If you keep fowls at home you will know what these seeds are like. Before the cobs are ripe and the seeds hard, they are very sweet and pleasant to eat, and the girl of the Sudan likes them very much. There are not many British people living in the

Sudan, but the young girl sometimes sees British men who look after big fields of cotton. The girl lives with her parents, brothers and sisters in a house of smooth clay with a flat roof. Her father and mother work in the cotton fields, and she minds the baby and every day helps to pound the mealies into flour. Palm trees bearing sweet dates grow near her home. She has never seen a train, but sometimes one of the British men comes to her village in a motor car, or, perhaps, in an airplane.



AFRICAN GIRL
POUNDING MAIZE

The *South African schoolboy* lives in Africa, too, but many hundreds of miles away from the home of the girl of the Sudan. The sun is not so hot where he lives, and as he meets white people every day he wears clothes like those worn in England. This boy is in school. He is standing up in his desk to answer a question. He can read well, and behind him on the wall are some pictures he has helped to make. Through the window can be seen the leaves of a palm tree. This boy often sees trains, motor cars and trams, for he lives near large cities which are

like those in England. White people and dark-skinned people both live in South Africa. The boy could tell you all about the sheep farms, the ostrich farms and the mealies, and of the oranges and grapes which grow in the sunny land of South Africa.

Another hot land of the Commonwealth is called India. It is made up of two large countries in which live thousands and thousands of brown-skinned people with dark eyes. In the hottest parts clothes are light and loose and few are worn by men with hard work to do. People who can afford to do so wear beautiful garments of linen and silk, and some dress as British people do in a hot summer. The girl in the picture has a graceful sari wound round her and over her head. She is walking past a mango tree bearing fruit like huge juicy plums. She and her brother live on the wide flat lands where men and women grow rice, for Indians eat a great deal of rice. Ceylon is an island country close to India and the girl with the jar lives near a hillside, where is grown the tea you have when school is over.

TEACHING HINTS

1. Globe.—It is as well to introduce the globe at the beginning of the year. Children are always highly interested in it, and although the time may not be ripe for a lesson on it, much will be learnt incidentally if the teacher uses it to illustrate the positions of the countries mentioned. Probably a good deal has been learnt about the globe in the infant school, and in that case the teacher will be well-advised to revise the knowledge at an early opportunity.

2. Map.—There is no object in leaving the study of maps to a later period. Obviously, the children will not rightly understand them, but they are interested in maps, and are anxious to learn something about them. It is surprising how much children learn about maps incidentally if

they are given the opportunity to look at them.

3. Countries.—As this first lesson is specially intended to deal with broad general features, details have been omitted, but if the children have had no previous lessons in the infant school about children of other lands, it will be found helpful to refer to the products seen in the shops. Most children are now familiar with the advertisements and films showing Empire products, and they will probably have seen in shops Canadian and Australian apples; Canadian cheese, New Zealand lamb and butter, South African grapes, Indian tea, etc.

4. Dwellings.—Children readily understand from their own experience why people in cold lands wear furs and those in hot lands wear linen clothes. Even at the age of seven they will be able to reason why some Eskimos build winter houses of snow and summer houses of skin, also why many African people build their homes of branches, leaves and grass. If they are taking the history course in this volume they will learn why the ancient Egyptians built their houses of bricks made from river mud. The point to bring out is that man naturally uses for his dwelling the material which is most readily obtained.

5. Caution.—It is advisable not to tell any more in this lesson about the various children illustrated in the Class Picture, or it will be impossible to cover the work in a regional way. Probably the children already know a good deal more about some of them, such as the Eskimo, but as these will be dealt with in more detail later on, it is best to go straight on with the work, or little progress will be made. It should be remembered that the Eskimos are, relatively, very unimportant people.

6. British Commonwealth.—This term should be simply explained at an early stage. See that the children understand that the

British Islands are part of a great family of nations. At the end of this lesson they should realise a little of its vast extent, with its lands in the cold, cool and hot parts of the world.



MAIZE PLANT

7. Food.—Three principal food plants of man have been noted in this lesson—wheat, mealies and rice. These plants will be frequently referred to in subsequent lessons. They represent the main food products of cool lands, hot grasslands and hot wet lands. The children will probably be familiar with all except mealies. Show a few grains of maize (Indian corn), and demonstrate how some natives grind it between stones, and others pound it in the way illustrated on page 391.

8. Memory work.—(a) The Eskimo lives in the coldest parts of Canada. He dresses in furs and eats seals and fish. (b) The Canadian lives in a great country called

Canada. In the winter he cuts down trees, and in the summer he gathers the wheat. (c) Australia and New Zealand are sunny lands where men keep sheep and cattle, and grow wheat. (d) In the hot lands of Africa men and women grow cotton for our clothes and mealies for their own food. (e) India is a very large country and most parts of it are hot. Here men live chiefly on rice.

9. Exercises.—(a) Tell of two ways of going to Canada. (b) How do people travel to the land where the Eskimos live? (c) How do you know that parts of Canada are very cold? (d) Why do boys of Canada like the winter? (e) Why do men live in the forests during the winter? (f) What do many Canadians do in the summer? (g) Name a warm country far to the south? (h) Is Australia a cold land or a warm land? (i) How do boys dress in Australia? (j) What work do men do in New Zealand? (k) What do people grow for food in Africa? (l) What do people grow for food in India? (m) Why do many people of Africa build grass houses?

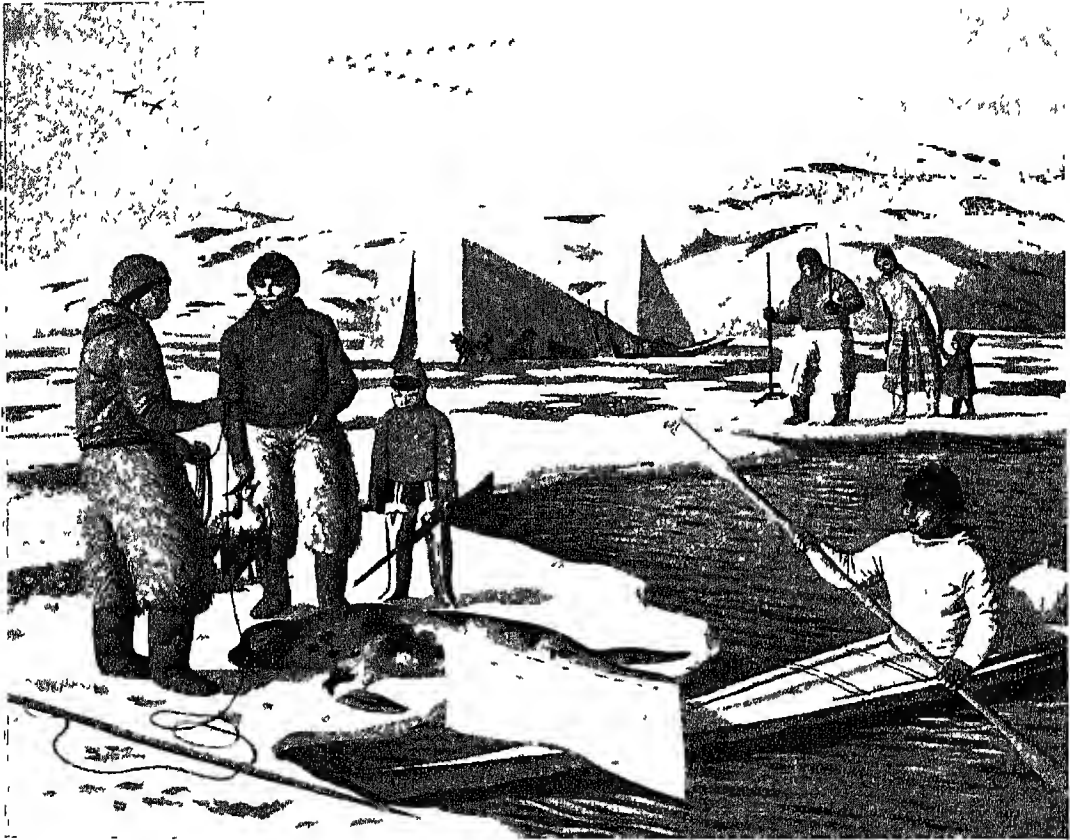
(Many more questions can be asked on this chapter if time permits.)



CORN COB

II. LIFE IN COLD LANDS

PICTURE REFERENCE



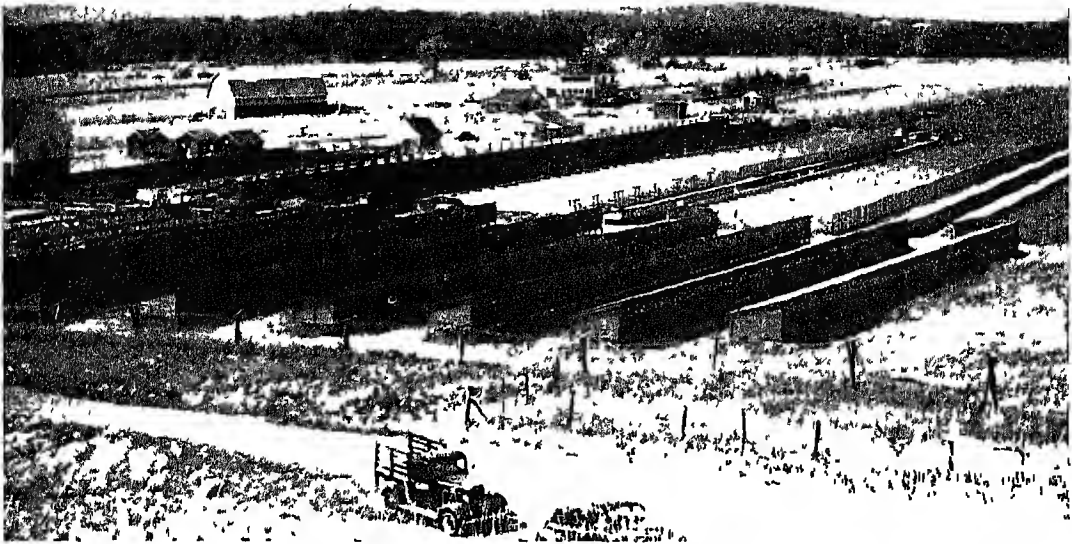
ESKIMOS IN SUMMER

(Class Picture No 63 in the portfolio)

INTRODUCTION

The Eskimos.—The name Eskimo is said to have been given by Indian neighbours to signify people who eat their food raw. It is generally agreed that the Eskimos are in blood and language one kind of North American Indian, but they present an appearance very different from that of the Indians. Their hair is

equally straight but the skin lacks the warm brown colour of their southern neighbours. The head is large and long; the nose is narrow and inconspicuous, which, combined with prominent cheek bones and broad face, gives a frontal appearance of flatness, the eyes are black, the hands and feet small, and the average stature about five feet. Since the advent of the white



[By courtesy of Canadian National Film Board]

COLPITTS FUR FARM, NEAR CALGARY, WHERE 15,000 FOXES ARE HOUSED

man their numbers have been greatly depleted, for they have succumbed in thousands to contagious diseases, notably measles.

The Eskimos live in many lands and in widely scattered communities, so that it is not possible to talk in general terms about their homes and modes of life, for these vary considerably. Some, for instance, are rich, educated men owning large herds of caribou (reindeer), others are poor and very primitive in their ways; some live during the winter in snow houses, others, the majority, have never seen a snow house, some have never seen a tree, others live on the margins of forests; some have been acquainted with firearms since the time of the American Revolution, others still hunt with bows and copper-tipped or stone-tipped arrows. The nature of their food varies considerably. Some depend mainly on seal, some live chiefly on fish, others on caribou (reindeer) and a large number live like Europeans.

In northern Canada and Labrador there are from six thousand to eight thousand Eskimos who use snow houses in winter and skin tents in summer. Scattered Eskimo settlements dot the whole shore of the Canadian Arctic (with the exception of the southern part of Hudson Bay) and extend down the Labrador coast almost to Belle Isle. Without the snow house life in winter would be impossible for the Eskimo in some of the inhospitable islands of the Arctic Circle. Where there is little driftwood obtainable, snow houses are the common residence in winter. Even when stone and wooden houses are common, the snow *igloo* is put up on journeys, as it is quickly built and is impervious to weather. To build a house a man cuts a trench some 5 ft. long and 20 in. deep in a snowdrift. From the face of the trench with his bone knife he prepares a number of snow blocks slightly concave so that they will lean inwards.

when set up on edge. He lays a circle of blocks and shaves them down, so that the succeeding layers form an ascending and narrowing spiral. As he works he cuts new material from the inside of his house. A keystone is dropped into the space at the top, and all cracks and crevices are filled with snow. Snow platforms are left inside for beds. A man can finish a small house in two hours. When it is done, the housewife lights her blubber lamp, and closes the door with a block of ice. The snow inside begins to melt, and owing to the curve of the roof it does not drip, but the water soaks gradually into the blocks. When the woman sees that they are sufficiently soaked, she puts out the lamp and opens the door. The rush of cold air freezes the house in a few

minutes, and it is then a very solid structure over which a polar bear might crawl without breaking in the dome.

At the end of the long winter, when the temperature rises, the snow houses begin to melt. Life in the *iglu* soon becomes uncomfortable, and the man and his family are glad when the weather conditions enable them to live in tents. Some of these are small three-cornered shelters, where skins are spread over a tripod leaving the lee side open. Others are larger, 6 ft. by 14 ft., with a ridge pole supported on a tripod at each end and a door in the middle of one of the long walls. This, like many of the snow houses, may contain two families, one to the right and one to the left of the door.



SLEDGE DRAWN BY "HUSKIES"—BANFF WINTER CARNIVAL

[Courtesy C.P.R.]

North of a line drawn from the middle of Bering Strait to the middle of the coast of Labrador, Canada is known as the "Barren Lands" During winter that part of North America is a barren, frozen waste, but during the short summer ice and snow disappear, the ground thaws to the depth of a few inches, and the land becomes a marshy swamp. Vegetation, under such severe climatic conditions, is necessarily very restricted, and consists of mosses and lichens which can survive the long, dark winter. Small flowering plants bloom freely during the short warm period of the year, but mosquitoes are then very numerous. Towards the south of the "Barren Lands" stunted berry-bearing bushes, such as the cranberry, crowberry and whortleberry, are found. The swamps of the short summer, caused by the water from the melted snow and ice being unable to escape through the

frozen ground beneath, are intensified by the addition of water from the rivers. The rivers flow from warm areas in the south to very cold regions in the north. The mouths of these rivers are still frozen when water from the upper courses is endeavouring to flow to the sea. Being unable to flow to the mouths of the rivers the water floods the land.

Life in the "Barren Lands" is a constant struggle for food. The Eskimo is dependent upon sea animals. Wild fowl, rabbits, caribou and bear are hunted during the brief summers, but seals and whales are more important than any of these. The flesh is eaten and the grease serves as fuel for the indispensable stone lamp used for heating and cooking during the winter. Wood is extremely scarce, but the Eskimos are skilful workers in bone, ivory and, to some extent, stone. Their chief weapons



SKI-ING—LAURENTIAN HILLS, QUEBEC

[Courtesy Canada House]

are lances and harpoons, the bow is made of bone and driftwood. Clothes are well-tailored, and the hunter's canoe, the *kayak*, is distinctive. It consists of a bone or wooden framework over which a waterproof skin cover is stretched.

In winter the snow is perfectly dry, and travelling by the dog-drawn sledge is comparatively easy. Considerable distances are covered in the search for food and *iglus* are used as dwelling places. Snow shoes are worn by some Eskimos when they travel on foot over the snow. In summer overland travel is difficult, but water travel is easy. The *kayak* is then used in moving from place to place, and the dwelling place is a tent.

Cold forests.—South of the "Barrens" a belt of forest stretches right across North America from the Pacific to the Atlantic, and it is broken only by the presence of high mountains or stretches of water.

The forest of Canada known as the cold forest, has a depth of about 600 miles, and a width of 3,000 miles. Winter, in this region of trees, is exceedingly cold, and the ground has a thick mantle of snow. One wonderful feature of the great forest is the small number of different kinds of trees. They all belong to the coniferous group, that is, they have needle-shaped leaves. Pines, firs and spruces are the chief trees; their leaves are short, needle-shaped, thick and leathery to prevent them from giving up water to the air, and for protection from severe cold and winds. The conifers are tall and straight, and they taper towards their summits. They have very few branches, and those they possess point upwards. Their straightness, height and evenness of grain give them an additional value. They bend rather than snap, and are useful as masts for ships, or for scaffold poles. Owing to the softness of the timber they are easily cut and worked, and the wood is in great demand by builders for the making of packing cases. It is also used in many other trades and industries. The soft parts of the trees are pulped into paper.

Those who work in the forest felling trees are called lumbermen. They carry on their work mainly in winter, when the frozen snow presents a smooth and slippery surface over which the logs can easily be transported. In summer, when the snow and ice have disappeared, the uneven surface would present many difficulties for the movement of huge trees. Sledges drawn by tractors carry the logs to the river banks, where they are piled into stacks. In spring, when the rivers once more begin to flow and their volume and rate of flow are increased by the addition of water from the melted ice and snow of the land, the logs are tumbled into the rushing streams. Huge rafts are carried along down stream in the charge of a few lumberjacks. Sawmills and pulp mills are situated some distance from the forest at convenient spots on the river banks. The same water power which floats the lumber down from the forests of the interior is used to work the machinery of the mills.

Wood pulp is largely used for paper making. It is obtained by grinding softer portions of trees under water, or by acting chemically upon the wood. There is a very large production of paper in eastern Canada and Newfoundland because of the abundance of softwood trees and water power.

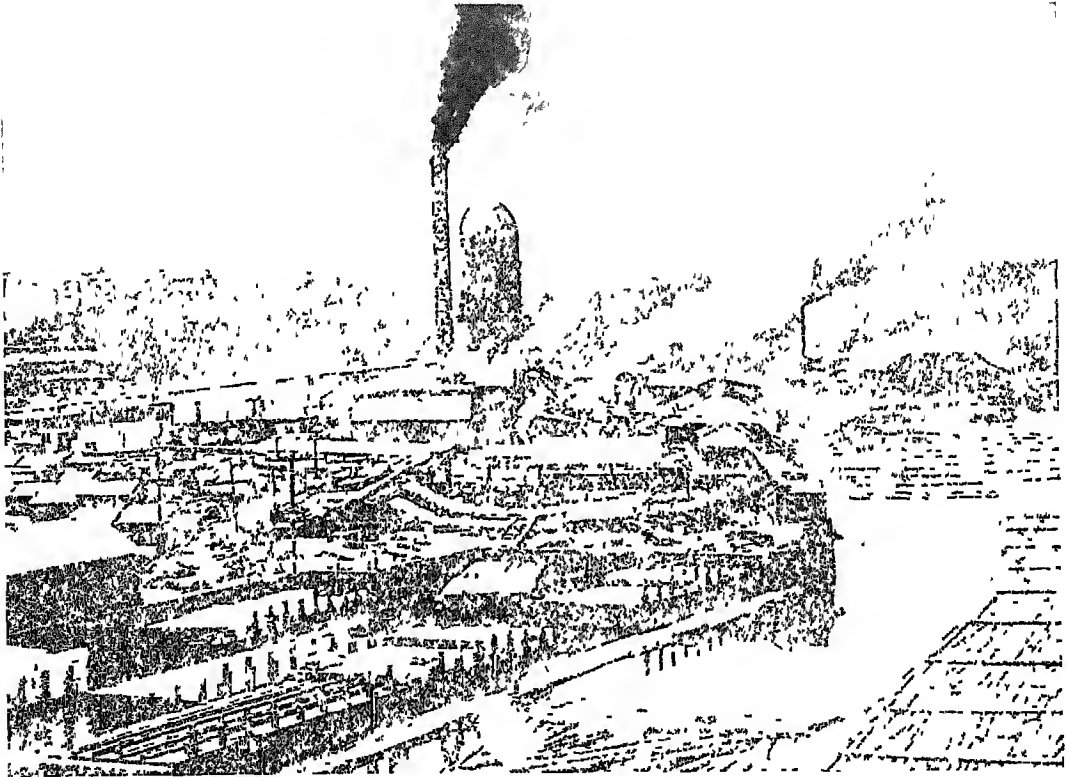
It is important to notice that in the forest area of the wet regions of western Canada some of the world's giant trees are found. The Douglas fir is one of the world's tallest trees, and it often reaches a height of 350 ft. A modification in the method of lumbering is necessary in western Canada owing to the mildness of the winter. The trees are cut up at the spot where they are felled, the sawmill being centred in the forest itself.

In all forest regions wood supplies the most suitable material for the construction of dwellings. Log huts are the rule for the backwoodsman.

Forest fires frequently do much damage in Canada, as in other areas of cold forest. Soft timber contains a great deal of resin,

and in dry seasons the wood becomes very inflammable. Lightning may often start a fire which wipes out a large area of forest.

climate. His dwelling place is a simple shanty built out of fragments of the forest, and his food supplies are often scarce



TYPICAL SAWMILL, VANCOUVER

[E N A

Fur-bearing animals.—The Canadian forest is the home of large numbers of animals. The evergreen leaves, berries, nuts and soft twigs provide them with a never-failing supply of food. Black, brown and other bears, the ermine, marten, silver fox, mink, beaver, sable, muskrat, and racoon are all very numerous. Most of these have skins which are highly valued for clothing in many lands. Trapping these animals is an important occupation in the forest, but the life of a trapper is a hard and dangerous one. He is open to the attack of many of the animals he desires to catch, and, in winter, he is subject to the rigours of a severe

The Hudson's Bay Company was founded in 1670 to engage in the fur trade with the North American Indians. Later the excellent water route of the St. Lawrence was used by adventurers who penetrated the forest for fur. Their success led to the formation of the North-West Fur Company. Rivalry caused many struggles, but ultimately the two companies joined forces in 1821.

Animals usually produce an amount of fur which is in proportion to the warmth they need, and we thus find that the winter coat generally constitutes a much more valuable product than the summer one. For the same reason, the furs which are most highly

prized are those obtained from the coldest regions. The dense, close fur of the mole and beaver is, however, more as a protection to the skin to save the animals from irritation during burrowing.

Some of the fur-bearing animals need special mention. The beaver haunts the streams flowing through the wooded regions. It has strongly webbed hind feet which are used in swimming, and a flattened tail used as a rudder. The body varies in length from two and a half to three feet. The great interest of the beaver lies in the wonderful skill and ingenuity it shows in the construction of its house, and in the building of a dam to give a good depth of water near its dwelling place.

Muskrats live in streams and ponds, and are most active at night, spending the day in their burrows. They sometimes build winter huts composed of food material plastered together with mud. The fur from these animals, one of the cheaper kinds, is called *musquash*.

The martens spend most of their time in trees and prey chiefly upon small birds and mammals.

The mink gives a dense, close, dark brown fur. This creature lives chiefly on fish, and it has a very unpleasant smell. The most valuable fur, given by the stoat or ermine, is obtained from the colder parts of the forest area. The stoat, like the Arctic fox, displays a seasonal change of colour. This change aids these animals in escaping from their enemies, or in stealing unperceived upon their prey.

The fur seal, known as the sea bear, is hunted for its fur mainly near the shores of Alaska. Only the young males are killed, and it is their woolly under fur that constitutes the sealskin of commerce.

CHILDREN'S STORY

THE ESKIMO

We will now have another talk about the Eskimo boy whom you saw in the coloured

picture fishing. You will remember that he lives in a part of the Commonwealth called Canada. His home is in the land of ice and snow far away from the homes of white people. Summer has come and the ice is melting so that his father can now go out on the sea in his canoe to catch fish. This very pretty canoe is called a *kayak*. Its ribs are made of wood or bone, and the cover is made of fine skins sewn tightly over the ribs. The man fits so neatly into the hole in the top, that even if the kayak should overturn in the water, none can get into it through the hole.

The summer home of the Eskimo is a skin tent. This is very quickly put up. The men put three poles into the ground to make a tripod, and they stretch skins of animals over the poles, weighting them at the bottom with stones. Upon a bench of earth inside they lay more skins on which to sleep.

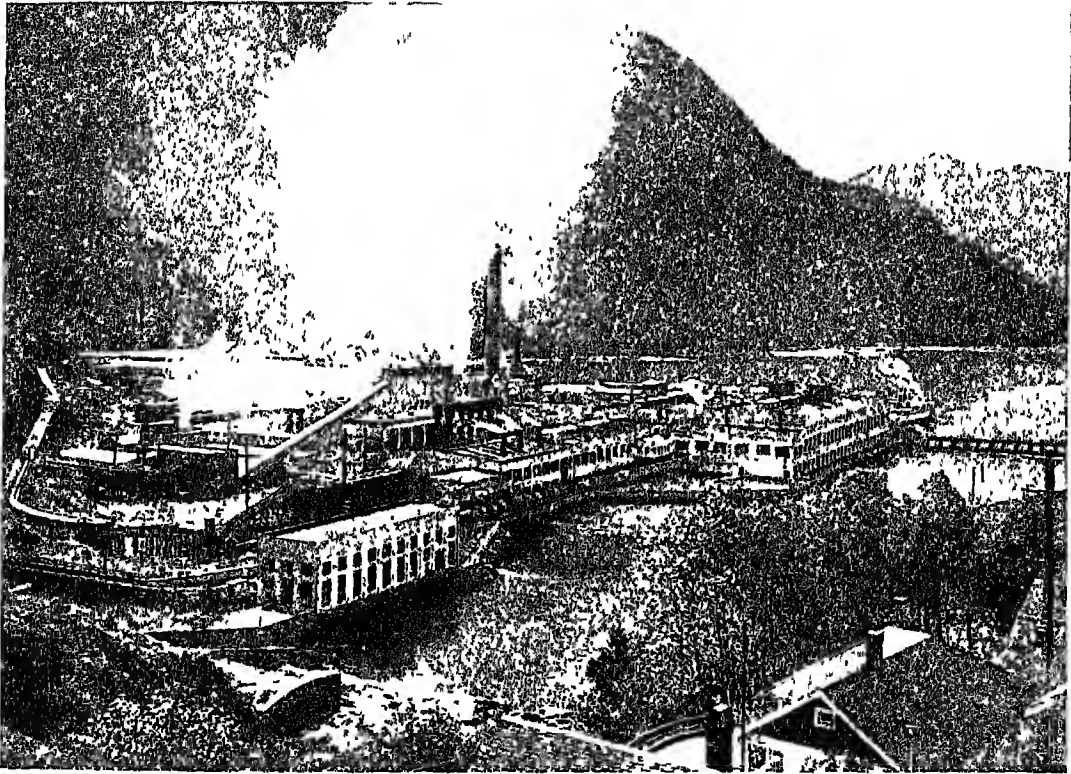
One of the strangest things that an English boy would notice, if he lived during the summer with the Eskimos, would be that the sun does not go to bed. It shines all day and all night. It never rises very high overhead, but there it is, and in some parts daylight lasts for several weeks. Then the ice and the snow melt, pretty flowers quickly bloom, and butterflies and bees are seen. The summers, however, are short. Bitter winter quickly comes, and in some parts there is then no sunshine for weeks together.

When the ground is covered with snow an Eskimo may build a winter house of snow. This is a very easy job for him, and he can finish a house in about two hours. With his bone knife he cuts out large blocks of snow and builds them in layers round and round, until he has made a house that looks like a large basin upside down. When he has finished his wife goes inside, lights her lamp, closes the door with a block of ice, and waits. The lamp is a stone basin filled with fish or seal oil on which floats a wick made of twisted moss. The little house soon begins to get warm. Then the snow melts, and when the inside is very wet the woman blows out the lamp and opens the door.

The icy wind blows through the doorway and in a few minutes the house is frozen solid. Now it will stand secure all the winter, and the family of Eskimos can live happily inside. If they intend to live there long they will build a shelter for their dogs, for Eskimo dogs are very useful for drawing sledges over the frozen snow when the men go hunting for seals, bears and foxes.

LUMBERING IN CANADA

I have already told you that Canada is a very large country, much larger than England. If you start from one side of Canada in an express train, it will take five days, travelling night and day, to cross to the other side. You must not imagine that it is all a cold land. Just the northern part,



[By courtesy of Canadian National Railways]

PULP AND PAPER PLANT, OCEAN FALLS

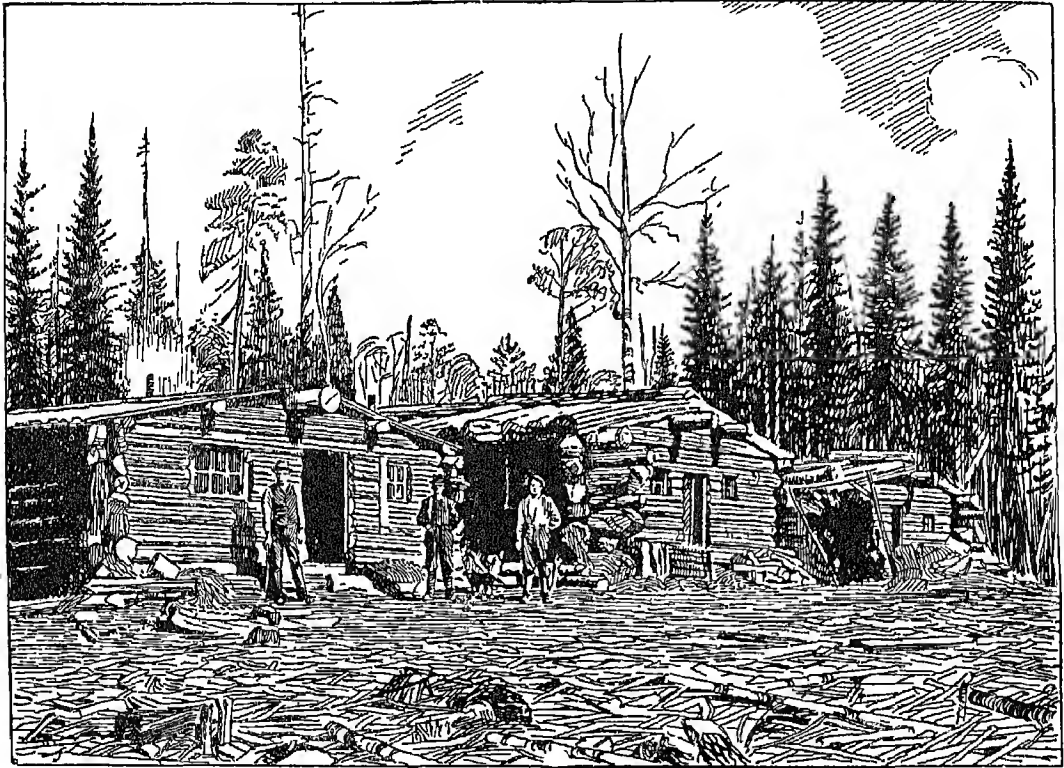
Of course the Eskimo has to wrap up well in fur clothes when he goes out hunting. You would find it hard to tell a man from a woman, they are dressed so much alike, but you would soon notice that a woman's hood is larger than a man's, and often you would see her baby inside it.

(Let the children tell as much as they can from the Class Picture.)

where the Eskimos live, and where only tiny plants grow, is really very cold. Stretching across the whole country there are hundreds and hundreds of miles of forests. The Canadians are very proud of their forest lands, for they help to make the people rich. Have you ever wondered where we get all the wood that is used for building houses? Look round your room and notice the things

that are made of wood—chairs, tables, desks, cupboards, floors, picture frames, rulers, penholders, pencils. What a long list you could make of things that are made of wood! Perhaps you do not know that a great deal of paper is made of wood, too. Many of the books you read, and almost all of the newspapers that are published every day, are made of wood. A great deal

bear curious and very pretty fruits which are called cones. Most of these trees are covered with leaves both in summer and winter. There are pines, firs and spruces. No doubt every boy and girl has seen at least one of these conifers. Where do you think you have seen one, or a piece of one? At Christmas time! All the thousands of pretty trees that everybody likes to see



LUMBERMEN'S LOG CABINS

of the wood that is used in England for building and for paper making comes from Canada, so now you will see why the Canadians are proud of their forests, and why the forests help to make them rich.

In the great forests of the colder parts of Canada most of the trees belong to the same family. They have short, needle-shaped, thick, leathery leaves. Most of them are tall and straight with few branches, and they

decorated with toys at Christmas are tiny conifers, or perhaps they are the tops of branches of them. Now you will remember what kind of leaves these trees have and how the branches stand out straight and stiff and point upwards to the sky. Have you ever put a piece of Christmas tree into the fire? How it crackles and blazes! These pines are full of resin that burns very brightly. Matches are made from the wood

of pines because it contains this resin. When you light a match you will often notice a strong, pungent smell from the smoke of the wood. That is the smell of burning resin which is contained in the pine. One of the most terrible things that happens in Canada is when parts of the vast forests catch fire. The beautiful pines burn so easily and fiercely that once they catch alight it is very difficult to put the fire out. A careless hunter or trapper may leave his camp fire burning, and from it a spark may set fire to the dry moss under the trees, and so begin a terrible forest fire. Day and night forest rangers watch the miles and miles of forests for the first sign of a puff of smoke. Some of them travel in airplanes over the forests looking to see that all is well. At the first sign of danger wireless and telephone messages are sent out. Men leap into motors or jump on horses. Some near the rivers hurry into canoes, and all rush swiftly to the spot where the smoke has been seen. Then with branches of wood, heavy sticks, spades, axes and other tools, all work frantically to beat out the smouldering grass and moss.

When timber is cut, the wood is often called lumber, and the men who cut down the trees of the forest are called lumbermen. At the end of the "fall," as the Canadians call *autumn*, parties of lumbermen go off to the forests with their axes and plenty of food. They build themselves large wooden huts or shanties in which they live all together. One or two stay in the shanties to cook the food for meals, and the others work very hard all day long felling the tall trees. The tops and branches of the trees are lopped off, the great logs are hauled by strong tractors, rolled and pushed along the frozen snow to the river banks. During the winter, when this work is done, the rivers are frozen, so that by the time the spring comes there are great stacks of logs waiting at different places for the rivers to carry away.

The rivers are made to do the work of carrying. No matter how many hundreds of great trees there are, when the ice melts

the rivers carry them all. Hundreds and hundreds of logs at a time float close together. Some men have to watch the logs and see that they do not get jammed. They have iron spikes in their boots to enable them to walk on the logs as they roll about in the water. They carry long spiked poles with which they push into place any log that does not float along with the rest. Often the men build wooden huts on the rafts so as to be ready night and day to guide the rafts down the rivers. On and on go the logs, sometimes for weeks together, till they are guided to the great sawmills, where some are quickly cut up into planks and poles for building houses and furniture, and others are ground between rollers in great machines and mixed with water to make a thick paste which is called wood pulp. Tons and tons of this wood pulp are sent in ships to Britain to be made into paper.

Before leaving the wonderful forests of Canada I must tell you about a beautiful tree that is not an evergreen. It is called the maple. The Canadians think that this is the most beautiful of all their trees. People in England call the rose their special flower, the Scots have the thistle, the Irish have the shamrock, the Welsh have the leek, and the Canadians have the maple leaf. This leaf is beautiful in shape, and when the autumn comes the maple trees show a blaze of tints in yellow, orange, brown and red. Then the Canadian woodlands are a wonderful sight. From one kind of maple the Canadians get maple sugar. In early spring holes are bored in the trees. The juice or sap which runs out is collected in cans and taken away to factories, where it is slowly boiled until the sap turns into syrup, and then into a soft brown sugar. Canadian boys and girls are very fond of maple sugar and the candies that are made from it.

THE FUR TRAPPERS

As you walk along the streets you will sometimes see a shop window full of beautiful

fur coats and wraps which ladies like very much, because they are so warm and comfortable to wear. Some of the small pieces of fur cost only a few shillings, but some of them cost many pounds. You may see a fur coat in the window with such a price marked on it as £100, and some are much more expensive. Where do these furs come from and why are they so dear? Many of the best furs come from the forests of Canada. In these forests live wild animals such as bears and foxes. In the rivers and lakes, too, live beavers and muskrats.

Every year, when the autumn comes round, men called trappers get ready to go to the forests to catch these wild animals in steel traps. They are caught during the winter, for then the coats of the animals are specially thick. Sometimes several trappers set out in a party, but often a trapper goes alone to the forest. He takes with him a sleigh drawn by dogs. On the sleigh he packs up all he needs for several months. He has a sleeping bag made of warm reindeer skin, for he will have to sleep in a rough hut which he must build of wood, snow and branches. He takes plenty of flour, salt pork and dried meat, for in the lonely forests there are no shops or houses. He must have matches to light his fire, and he carries a gun to shoot any animals that may attack him or which he needs for food, and besides these things he takes a number of steel traps. All day long he travels, sometimes riding in the sleigh, sometimes running beside it on his snowshoes. Snowshoes are wooden frames, joined together with a network of leather straps which makes them look like tennis rackets. On these the trapper can glide easily over the soft snow without sinking into it.

When he sees the tracks of animals and knows that they are likely to pass that way again, he stops and sets his traps, cunningly hiding them so that the animals cannot see them. Sometimes if he wishes to catch a beaver or a muskrat, he sets his traps under water. At nightfall, when it grows

too dark to journey any longer, he makes camp, lights a fire to cook his supper and to keep away prowling wolves or bears, gives his dogs a good feed of frozen fish, and then, rolling himself in his sleeping bag, sleeps till morning.

In this way the trapper travels on day by day till all his traps are set. Then he is ready to turn back to visit the ones he has laid. What will be in each as he comes to it? There may be nothing at all, and sometimes it seems that trapping is very wasteful and sad work. A poor creature may be caught whose fur is of no use at all, or perhaps the animal in the trap has been eaten by another and its beautiful fur spoiled. Now and then, however, he sees in the trap a valuable animal, such as a beautiful silver fox, whose thick black fur is streaked with long white hairs which make it look like silver. He kills the fox and carefully skins it, then he piles the skin or pelt on his sleigh and goes on to the next trap.

Day after day the trapper works hard getting more and more pelts. At the first signs of spring, when the snow begins to thaw, the trapper makes for the trading station. This is a village of wooden houses and stores where men live ready to buy the pelts from the trappers. Perhaps the trapper has hundreds of miles to travel with his load of pelts to the nearest trading station. He is very glad when he arrives there to see men's faces again after his lonely travels, and he is glad, too, to get a good meal, for there is usually little left of the food which he took with him. He meets many old friends who, like himself, have been trapping all the winter, and they have many stories to tell one another. The traders who buy the pelts send them to one of the great fur markets in London, Montreal in Canada, or some other city.

Now, perhaps, you will understand why some of the furs that hang in the shop windows are so dear. Make a list of the names of animals which have fur coats. Do not forget rats and mice.

TEACHING HINTS

1. **Blubber.**—Blubber is the covering of thick fat which surrounds the bodies of whales, seals and some other marine animals. It is one of the products for which whales are hunted, and from it comes the valuable oil for making into margarine, soap, etc. The Eskimos persistently hunt the seal for its blubber and skin.

2. **Lumbering.**—This term is applied to the harvesting of the forest products, and the conversion of the wood into various shapes and sizes for commercial use. The term originated in America, where one of the first great obstacles encountered by the early settlers was the forests. Except for the building of shanties the forests were considered useless. Trees were felled primarily to clear the ground for farming operations, and the logs were referred to as "lumber" according to the original meaning of the word. In England the sawn logs and planks are usually called timber.

3. **Canada's immense distances.**—From Halifax, on the eastern seaboard, to Vancouver, on the western, the journey by rail is 3,772 miles. From Vancouver, Canada's westernmost city, to Dawson City among the gold-bearing places of the Yukon is 1,550 miles by water and railway. From the 49° N. parallel of latitude (which is the boundary in the west with the United States) to the Arctic Ocean is 1,500 miles in an air line. Canada is somewhat larger in area than the United States and little less than that of the whole of Europe.

4. **Forests.**—On the five-day railway trip across Canada one is never out of sight of trees. The forests are part of the forest primeval, except in that part of the prairie region which was once treeless (save along the river courses) and which has now been planted with arboreal wind-breaks. Except in parts of the high prairies some variety of pine seems to be ubiquitous from the

Atlantic to the Pacific. Let the children make a list of all the things they can think of that are made of wood. Let them smell the resin of a burning match such as a "Swan Vesta." Some children will want to know more about the manufacture of paper. There is an account of this in Volume VI.

5. **Maple leaf.**—There is a blackboard illustration of this leaf. The children will like to draw it and colour it with paints or pastels. Most of them will know the national emblems noted in the lesson, but it will be advisable to make sure that they do know them.

6. **Snowshoes.**—Snowshoes are made of single strips of some tough wood, usually hickory, curved round and fastened together at the ends. Light cross-bars support the middle, and the spaces within the frames are filled with a close webbing of reindeer-hide strips. They are fastened to the moccasins by leathern thongs. American Indians and Eskimos have snowshoes of varying shapes, the shoe worn by members of the Canadian snowshoe clubs is illustrated in the blackboard sketches. This shoe is about 3½ ft. long and 15 to 18 in. broad.

7. **Moccasin.**—This shoe is made of deer skin or other soft leather. It is made in one piece and the upper part is often adorned with embroidery or beading. The moccasin is the footwear of the North American Indian tribes and is often worn by trappers and settlers.

8. **Beavers and seals.**—Information on these creatures and on many animals and plants likely to be mentioned in the lessons throughout the volumes is given in the section on "General Knowledge," Volume VI.

9. **Memory work.**—(a) Eskimos live in the cold north of Canada. (b) They live in snow houses in winter and skin tents

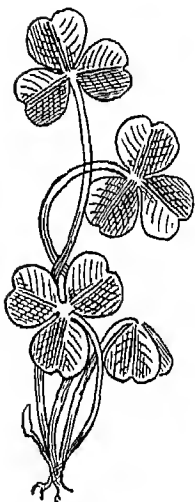
in summer (c) Lumberers cut down trees in the Canadian forests during winter (d) In spring the lumber is floated down the rivers to the sawmills. (e) Trappers catch wild animals in the forests and sell the pelts to traders.

10. Exercises.—(a) Tell how Eskimos dress (b) Tell how they build snow houses.

(c) Make a list of twenty things that are made of wood (d) Tell all you know about pine trees. (e) Why do pine trees burn well? (f) What is maple sugar? (g) What is a trapper? (h) Why does a trapper catch animals in winter and not in summer? (i) Why are some furs very expensive?

(Many more questions of this character can be given during the lessons)

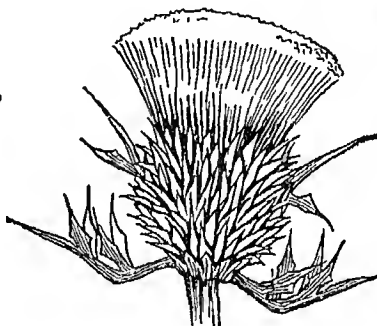
NATIONAL EMBLEMS



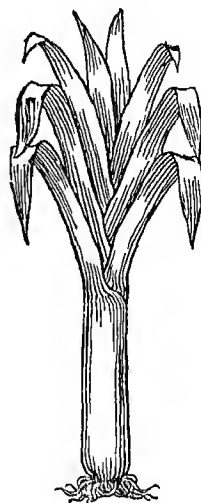
IRISH SHAMROCK



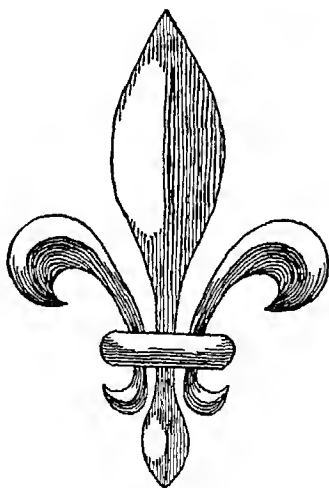
ENGLISH ROSE



SCOTTISH THISTLE

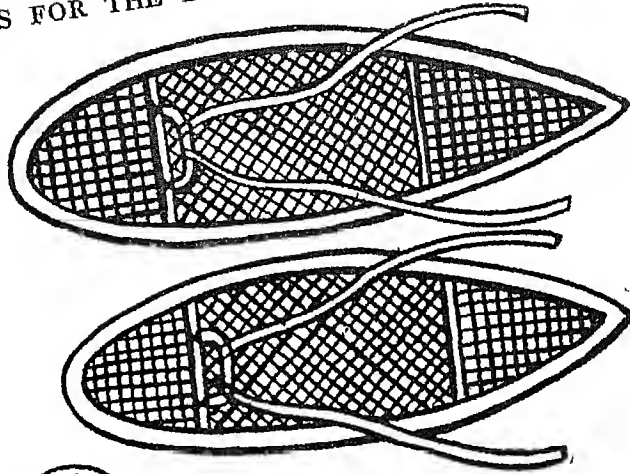
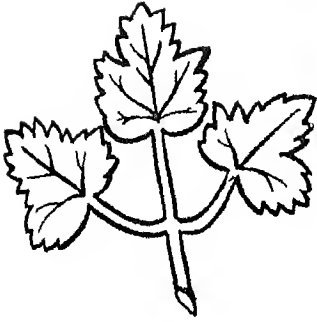


WELSH LARK

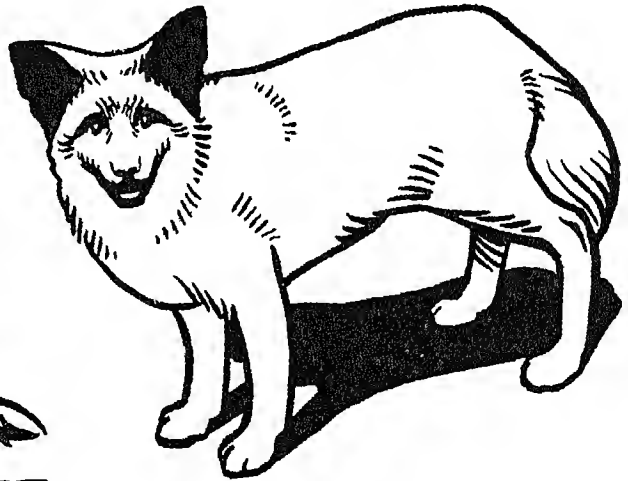


FRENCH FLEUR-DE-LIS

SKETCHES FOR THE BLACKBOARD



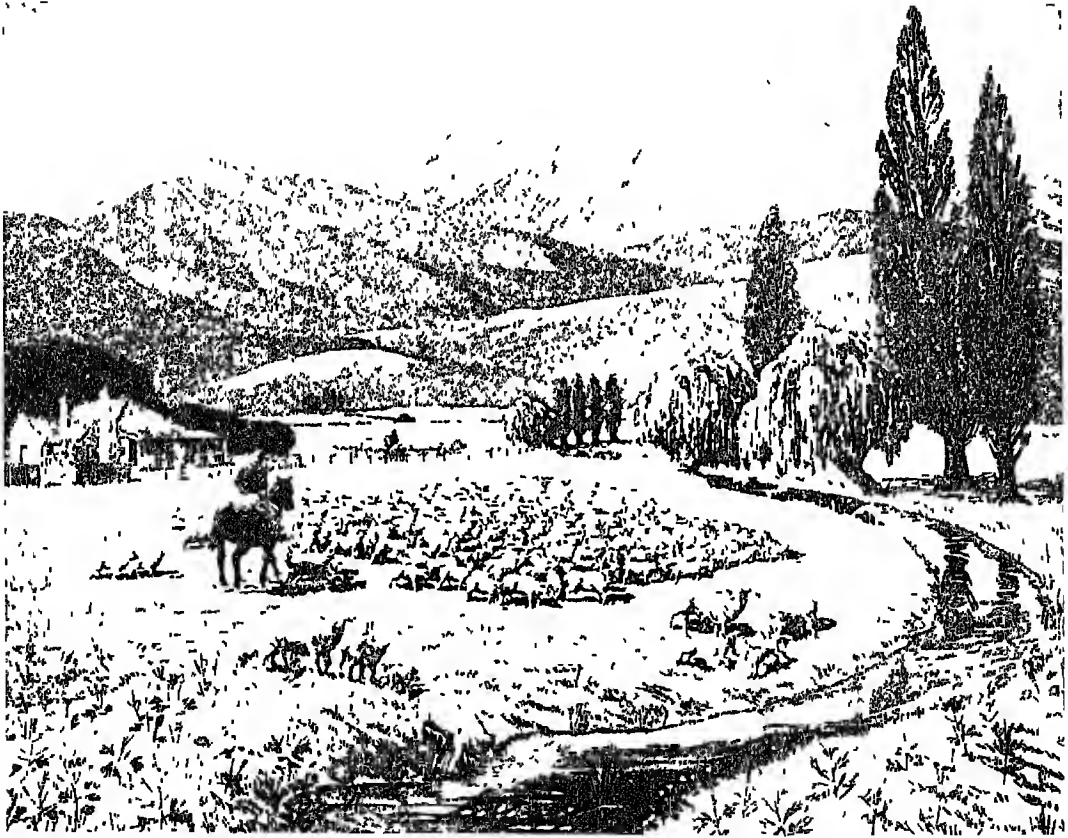
MAPLE LEAF
CONIFER



SNOWSHOES
SEAL
SILVER FOX

III. COOL GRASSLANDS

PICTURE REFERENCE



SHEEP-RAISING IN NEW ZEALAND

(Class Picture No 64 in the portfolio)

MANY children will be familiar with the advertisements in the butchers' shops of New Zealand mutton and Canterbury lamb. They will have to be told about the Canterbury Plains of New Zealand. The sheep is one of the best known animals to children, for even in cities sheep are

frequently seen grazing in the parks. They will specially notice in this picture the character of the trees in the foreground and the general sunny appearance of the country. They will observe, too, the distant mountains, the river, the plain and the sheep stations.

INTRODUCTION

The Children's Story in this lesson is mainly concerned with the great wheatlands of Canada and the industry of sheep-raising in Australia and New Zealand. There are illustrations of Ploughing in England, No. 104, Threshing in England, No. 105, and a Cattle Ranch, No. 80, in the portfolio. The chief point of the lesson is to give the children some idea of the work and life of man in the wide open spaces of the cool grass regions of the Empire. It will not be advisable to deal in any detail with these various regions, and several must be omitted. The teacher must take care to compare the district in the neighbourhood of the school with those spoken of in the story. It is obvious that the treatment of the lesson, and indeed the treatment of all geography lessons for young children, will vary with the district in which the school is placed.

The prairies of Canada—To the south of the broad evergreen forest of Canada, and lying between the Rockies and the great lakes, are the grassy plains. They have a width of 800 miles in the south, narrow to 400 miles in the north, and rise by three distinct steps, or prairie levels, from east to west. This region of grass is Canada's most valuable land, and includes the greater part of Manitoba, Saskatchewan and Alberta. The land is almost treeless, has a rich, loamy soil, is well watered by numerous rivers and lakes, and is highly fertile.

The transition from forest land to grassy plains is the result of a distinct climatic change. The more southerly position of the prairie results in a hotter and longer summer period of the year. The inland position and the lack of the tempering influence of the sea tend still further to increase the summer temperature and, at the same time, bring about very cold conditions in winter. Winnipeg, the "halfway house" of Canada, has a warmer summer than London, but for five months during the winter the temperature is considerably below freezing point. The rainfall of the

prairie provinces is rather small and is of a summer character. Winnipeg has about 20 in. of rain a year, and, of this, 15 in. fall during the seven months when the temperature is above freezing point. The five inches of water received during the winter fall as snow, and are equivalent to a depth of 50 in. of snow.

The heavy snowfall of the plains is a distinct boon to the land. When it melts in early spring the moisture remains in the under soil, and so compensates for the small rainfall during the hot summer months. During the winter, when temperatures are very low, the dry, crisp atmosphere makes conditions less uncomfortable than the damp, cool atmosphere of much warmer lands.

The natural vegetation, under the climatic conditions outlined, is grass, a plant which can go through the whole cycle of growth in a short season. The rainfall is not sufficient to keep the soil moist at all seasons, and trees are found only near rivers or lakes. The growing season is confined to the summer months, when the soil is warm and moist. Grass can germinate from the seed, develop, and seed again, before winter sets in. In the early period of its growth, during spring and the first months of summer, the grass is of a rich green colour, but towards the fall of the year the colour changes to brown. Early spring is marked by a profusion of bulbous flowers. Migratory birds leave the prairie in autumn, but return in early spring. Frogs, lizards and hedgehogs, which sleep in burrows in winter, are active when the mantle of snow disappears from the ground.

For many centuries, before the appearance of the white man in North America, the prairie plain was the home of the bison and Indian tribes. The American bison now flourishes only in reservations, but less than 100 years ago it existed on the prairie in countless numbers. In appearance it resembles the domestic ox, but differs in the much greater development of the shoulders and chest, the presence of a heavy

mane, and in the growth of a large beard beneath the chin. No effort has been made to domesticate the bison.

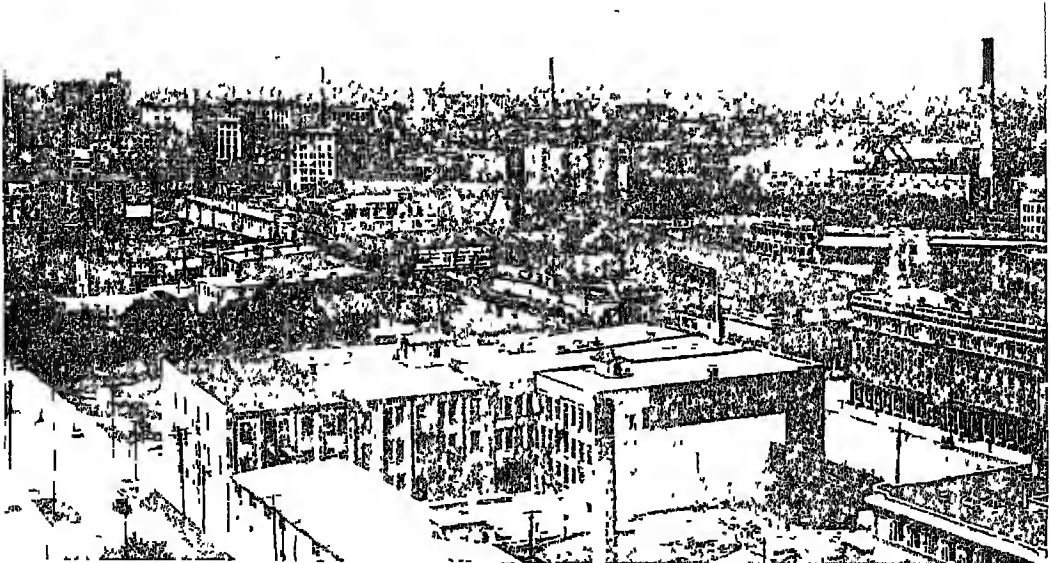
The Indians of the plains depended on the bison for their existence. Its flesh was their commonest food. In order to have a store of food in time of emergency the flesh was often dried, mixed with fat, and pounded into a solid mass called pemmican. The tongue of the bison was considered a great delicacy, and, in time of plenty, the rest of the body would be left for birds of prey after the tongue had been extracted.

The Indians were wanderers of the plain, living in tents, called tepees, which could be easily erected and carried. These tents were constructed of poles and skins. When travelling on the numerous rivers and lakes they used the simple birch-bark canoe which they paddled and steered with one oar. After the introduction of the horse into Canada they became expert horsemen, and

they then used that animal to drag their tepees and other possessions from one camp to another.

The red man, as a nomad, is now nearly extinct, and the prairie has become farmland. The eastern part is now one of the great wheat-producing lands of the world, the middle prairie province, Saskatchewan, leading the way in the production of the golden grain. Rich soil, moistened by the winter snow and summer rain, and warmed by the heat of the summer months, is admirably suited to wheat production. Winnipeg is the great grain market, and it has grown into a large city because of its favourable position for handling the wheat of the prairie lying to its west.

The absence of trees means that the land needs no clearing before it can be ploughed. All that is necessary to turn the prairie into wheatland is hard work, machinery and railways. Farms are large, and the



WINNIPEG—GENERAL VIEW OF BUSINESS SECTION

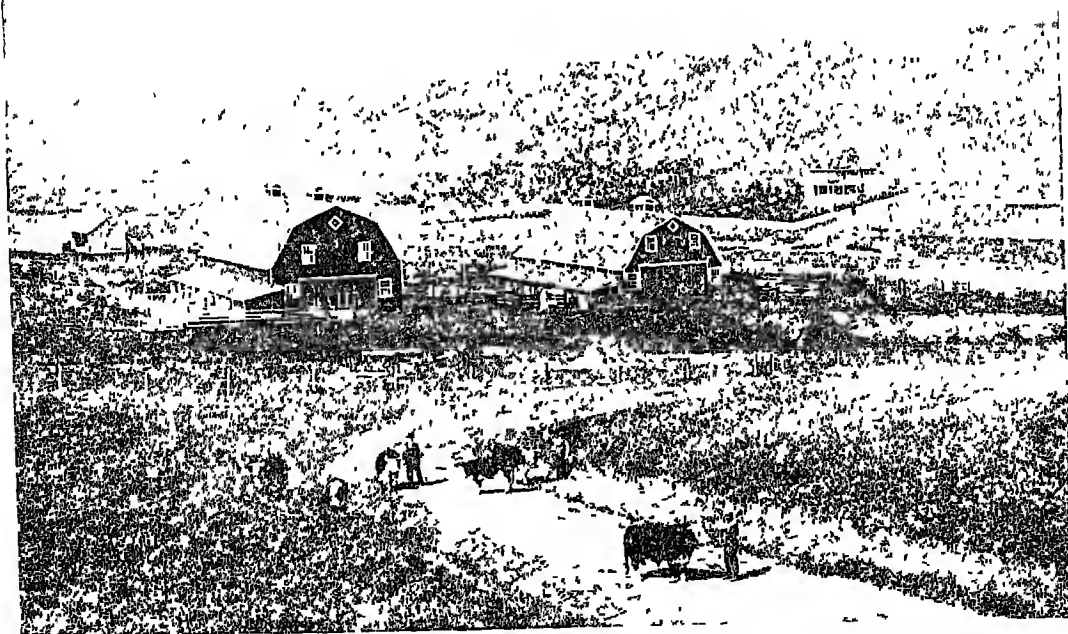
[Courtesy C P R.]

simple horse-drawn plough and reaper have been superseded by wonderful motor-driven machinery. The grain is grown mainly for export, and therefore the development of the grassy plains into farm lands has become possible only by the construction of thousands of miles of railways and roads for the transport of the crops to the ports in the east of Canada. Much of the grain for export is handled through elevators located at most of the railway stations. The farmer delivers his grain to the elevator at his nearest railway station. In addition to the elevators at the railway stations, immense storage elevators have been provided at some of the largest cities. Most of the wheat is taken by rail to Port Arthur or Fort William, on Lake Superior, the nearest points to the prairie on the Great Lakes. At these cities it is again stored in elevators

to await shipment overseas. Immediately after the harvest the railways make special efforts to handle the crops, and trains each carrying over 1,000 tons of wheat are found on every main or branch line in the prairie provinces.

Oats and barley are also grown in each of the prairie provinces, and in addition each farmer has his garden where he raises fruit and vegetables. The garden, after providing a large part of the needs of the family table, is a source of revenue, since there is a good market for vegetables and small fruits. Many farmers keep bees, and the production of honey is rapidly increasing.

The natural grass of the prairie plain is turned to account for stock raising and dairying. On every grain farm there is always a large amount of material not quite good enough for the market, which



[Courtesy Canada House]

RANCH SCENE IN ALBERTA

makes excellent feed for stock. Cattle, horses, sheep, pigs and hens can be counted by the million on the grasslands of Canada.

Ranching is specially important in Alberta, near the foothills of the Rockies. The warm Chinook wind rapidly clears the prairie of its winter snow, and cattle can usually be kept in the open throughout the whole year. The excellent fodder provided

but there is also a much greater demand from the densely peopled regions of many parts of the world which cannot produce what they require in meat and dairy produce. A large export of Canadian cheese, beef, condensed milk and butter thus gives greater prosperity to the Canadian farmer. Pig breeding is becoming increasingly important. The establishment of pork-packing houses at



MOUNT ASSINIBOINE—TRAIL RIDERS' CAMP

[Courtesy C. P. R.]

by the natural grasses makes conditions ideal for dairying and stock raising.

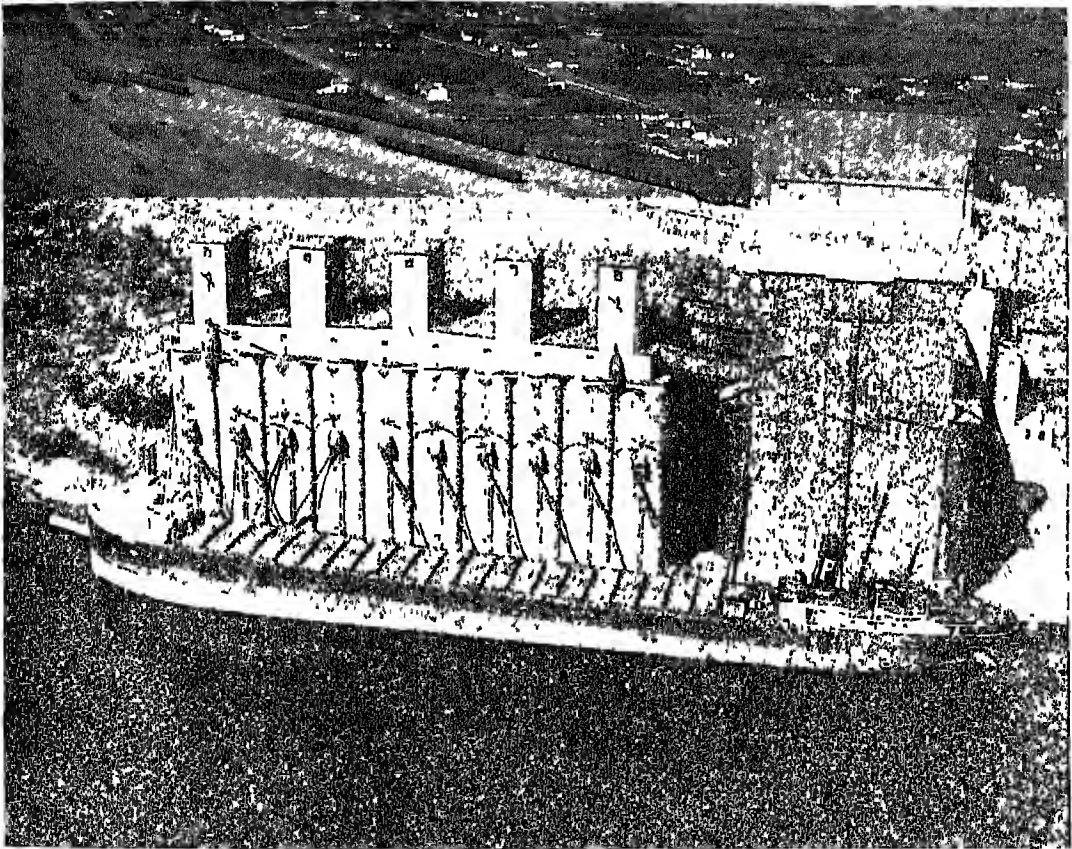
The importance of the use of the grasslands as feeding ground for cattle needs emphasis. In Canada the rapid rise of hundreds of towns and villages has created a demand for milk, cream, butter, cheese and beef. Not only do the farmers find a market for these things in their own country,

Edmonton and Calgary has greatly encouraged the hog industry. Canned pork, bacon and hams form leading exports of Canada.

It is interesting to notice that a country suitable for farming on a large scale soon begins to manufacture certain things needed in its area, or based on the abundance of material it produces. The prairie plain produces an enormous quantity of wheat,

and many towns are engaged in the milling of flour. Farming demands farm implements, and many of these are made in the towns of the farming area. The grasses support large herds of cattle, and butter and cheese factories are numerous. The development of the prairie during the last fifty years has attracted thousands of settlers, and this has created a great need for building

south of Canada, the prairie is used for grain production and for cattle rearing. Wheat is a very important crop, but in parts, where the summer temperature is higher, maize production ranks first. The United States is the home of the "cowboy," and cattle ranches are exceedingly large in the western regions of the grasslands. In South America the cool grasslands are



NORTHLAND ELEVATOR, FORT WILLIAM, ONTARIO

[Courtesy Canada House]

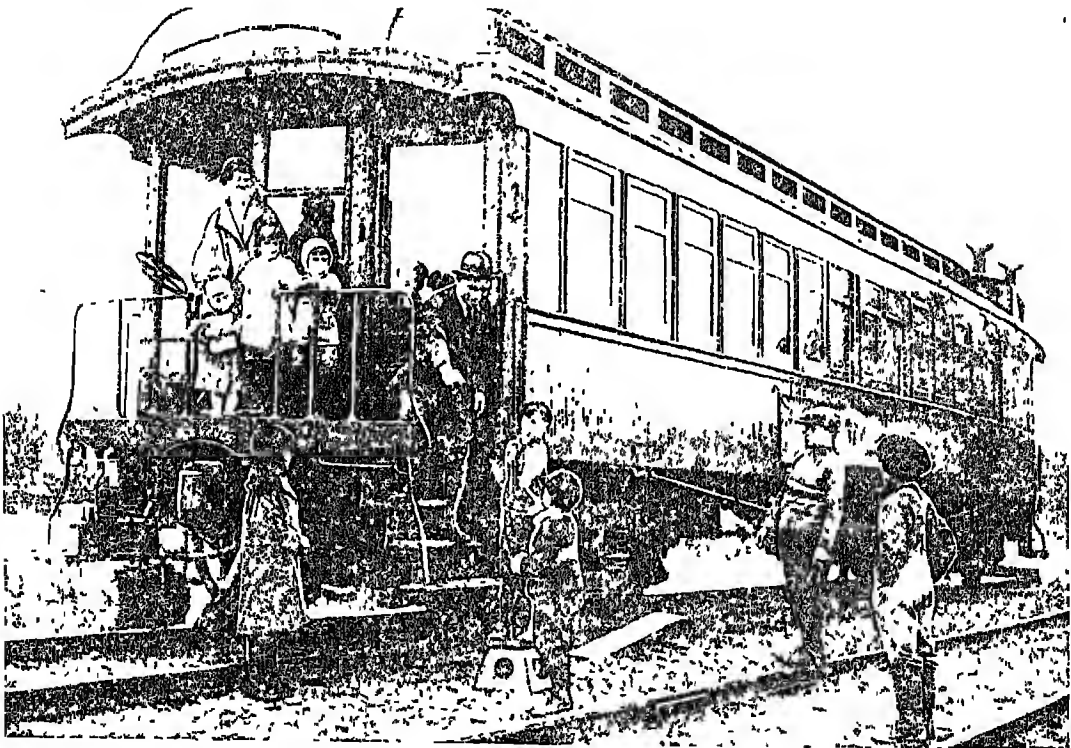
material. Lime burning, brick and tile manufacture, and industries connected with timber for buildings have grown up to meet the local demands.

Grasslands similar in many respects to the Canadian prairie are found in many countries. In the United States, to the

called pampas, and they produce wheat and meat products. The grasslands of Australia and New Zealand are important for their sheep, cattle and wheat, and these British Dominions export tremendous quantities of mutton, wool, wheat, butter and cheese.

The grasslands of Australia and New Zealand.—A little more must be said about the importance of Australia and New Zealand owing to the great prominence of their grassland products. Large areas of Australia, particularly in the south-east, support tremendous flocks of sheep and large herds of dairy cattle. A contrast must, however, be noticed between the Canadian

were more or less covered with bush and scrub, and much useless vegetation had to be cleared. Some of the native grasses and bushes (salt bush and sage bush) were, it is true, excellent feed for sheep, but large areas had to be sown with European grasses. The climate of Australia, although in many respects very favourable to sheep rearing, possesses one disagreeable feature. Large



(Courtesy Canada House)

C.N.R. SCHOOL CAR ON CAR SIDING—ONTARIO DEPARTMENT OF EDUCATION

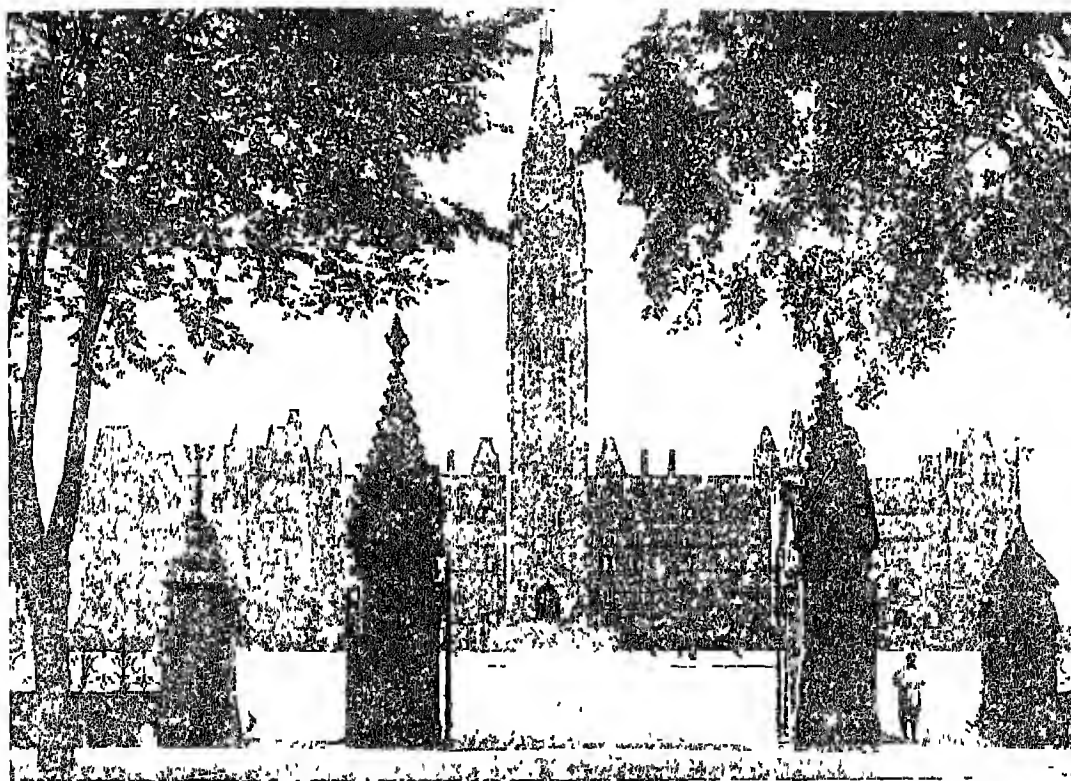
prairie and the Australian pasture land. It has been seen that the prairie was, in its original state, a good feeding ground for cattle, and ready for the plough for conversion into wheatland. Fairly level treeless expanses of land offered very little trouble to the settler. Again, in Canada, climate favoured both pastoral and agricultural work. In Australia great expanses of grass were not found by the early settlers. Many of the areas now converted into sheep runs

areas have a small rainfall, and are sometimes seriously affected by drought. Before the introduction of artesian wells and the commencement of the irrigation of large areas, disaster sometimes came to the farmers through drought. Wonderful progress has been made, however, and Australia now possesses more than a hundred million sheep and is the foremost country in the world for the production of wool. New South Wales is the leading State for sheep

and for wool, the area near the rivers Murray, Lachlan and Murrumbidgee being of special importance. Each State, however, has some of its territory suitable, both as regards its pasture and its climate, for sheep rearing.

Dairy farming is mainly concentrated on the wetter coastlands, particularly those of Victoria, New South Wales and southern

and there are large areas of excellent grass-land which require little preparation for the flocks and herds. Several of the native grasses are excellent sheep food, particularly the tussock grass. The best sheep pastures occur on the drier east of both islands, particularly near Hawkes Bay and on the Canterbury Plains. Owing to the small size of the islands the number of sheep is small



PARLIAMENT BUILDINGS, OTTAWA

[E N A

Queensland, and the export trade in butter and cheese is now assuming great dimensions. In Australia, dairy herds are able to graze in the open all the year round. The climate is so mild that permanent shelters are unnecessary. Two and a half million dairy cattle are now to be found in Australia.

New Zealand is in some respects better fitted for sheep runs and dairy cattle than Australia. There are no areas of drought,

in comparison with that in Australia, but, for its size, New Zealand has more sheep per head of the population than any other country of the world. A great trade in chilled mutton and lamb has been built up, particularly with Britain. North Island possesses slightly more than half the sheep of the Dominion. Dairy herds are also more numerous in North Island, especially in the southern half, and the export of butter and

cheese is very large In both Australia and New Zealand settlement is of recent occurrence in comparison with Canada, but the importance of both countries for wool, frozen meat, hides and skins, tallow, butter and cheese is now very great indeed and is steadily increasing

Agriculture has, similarly, made great progress in both countries, particularly in the cultivation of wheat The south-eastern

Mr. Williams the baker, Mr Jones the greengrocer, Mr West the clothier and Mr Adams the shoemaker With which kind of shopkeeper does your mother deal most? I do not think any of you will make a mistake in your answer, for there is one of them with whom your mother deals every day Of course it is the baker. Two, three or even more times a day every man, woman and child in the land eats bread Bread,



BRINGING DOWN THE WOOL—AUSTRALIA

area is again the chief wheat-growing region of Australia, and in New Zealand a large proportion of the wheat of the Dominion is grown on the Canterbury Plains

CHILDREN'S STORY

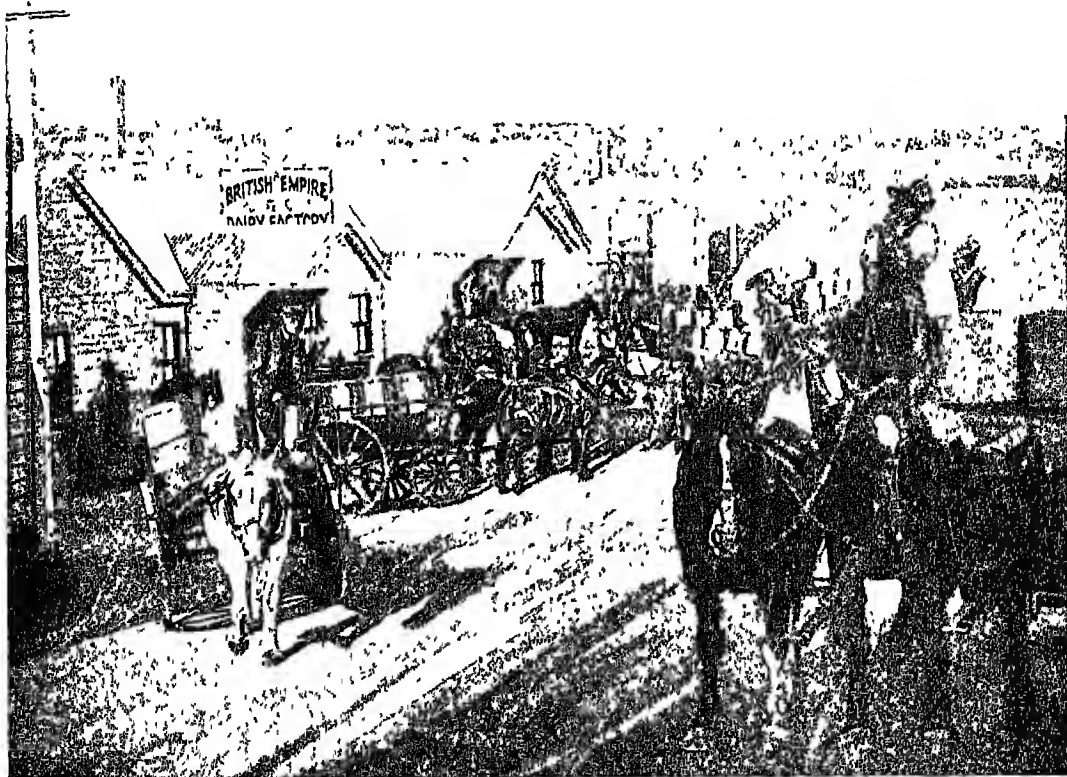
THE PRAIRIES OF CANADA

Here are the names of six shopkeepers—Mr. Smith the grocer, Mr Brown the butcher,

as you know, is made from the flour of wheat. Have you ever wondered where all the wheat comes from to make the many thousands of loaves that are needed every day for our food? A good deal of it is grown in England, but the farmers of England cannot grow nearly enough wheat for all the loaves that are needed Most of it comes from that rich land, Canada Canada, as I have told you already, is a very large

country. Great forests stretch across it for hundreds of miles, in one part, the west, there are very high mountains called the Rockies; in another part, the east, there are great rivers and mighty lakes, but there are also hundreds of miles of flat lands called plains or prairies. Before the British went to live in Canada these prairies were covered with grass on which roamed vast herds of wild cattle called bison. The

that the flat prairie lands were the finest places in the world for growing wheat. There was plenty of warm sunshine during the summer to ripen it, and there was so much space that the men felt sure they could grow enough wheat for all the people of Canada and England. One thing, however, was needed. The prairies are hundreds of miles from the sea. How could the farmers of Canada get their wheat from these rich



F. C. Herrick]

[Courtesy High Commissioner for New Zealand

DAIRYING IN NEW ZEALAND

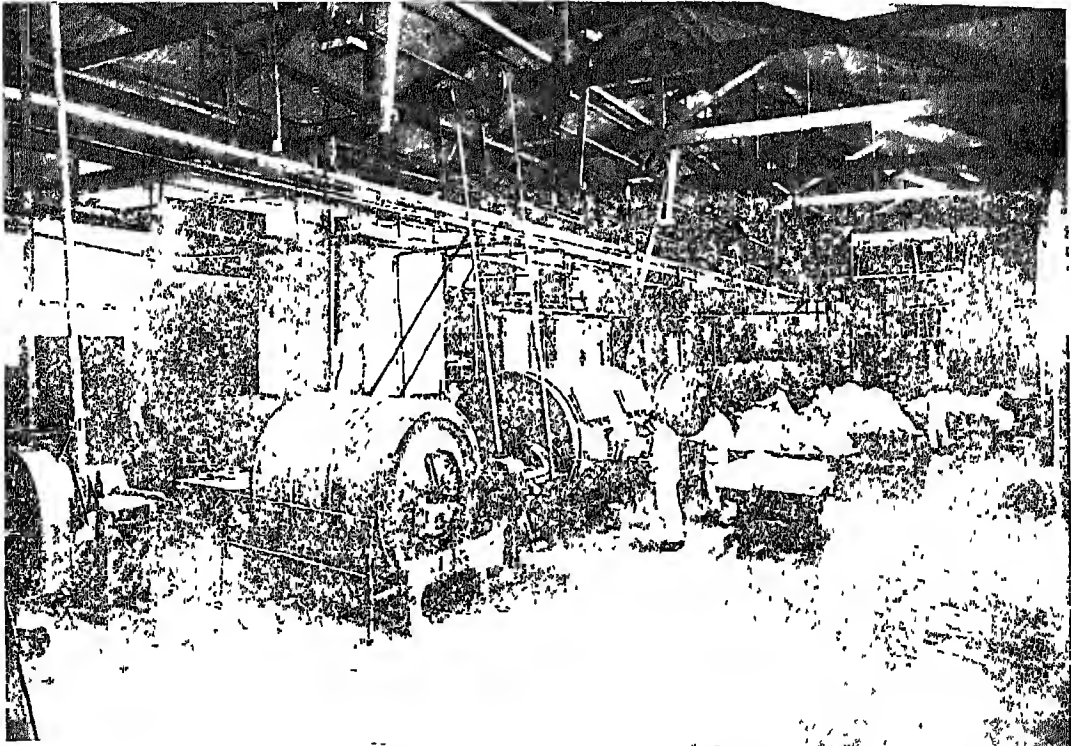
people who lived there then were a brown-coloured race with long, straight, black hair. They dwelt in tents made of skins, and they lived by hunting the bison. When the British went to live in Canada they called these people Red Indians. They do not live by hunting now, and nearly all the bison have gone. The Britishers found

lands to ships? There was only one way, and that was to build a railway.

Men set to work and made a grand railway reaching from the Atlantic Ocean on the east right across the whole country, over the lofty Rocky Mountains, to the Pacific Ocean on the west. This grand railway is called the Canadian Pacific Railway or the C.P.R.

It is by this railway that the wheat is now brought to the ships which carry it to England. The prairie lands of Canada are so large that the farmers have to plough with a number of tractors and machines, each with several plough-shares, all working together, and many furrows are ploughed quickly at one time. Then, too, when the wheat is ripe, huge machines do all the work of harvest at the same time. As they drive

the farmers keep great herds of cattle to supply meat for the hard-working people. Many of them keep hundreds of pigs, for pork is delicious food when it is cooked with beans, and the farmers, too, keep plenty of poultry to supply them with fresh eggs. What are the Canadians doing now as you hear this story of the prairies? Are they ploughing, or sowing, or reaping or threshing? Are they felling trees in the forests?



INTERIOR OF DAIRY FACTORY—NEW ZEALAND

[Courtesy High Commissioner for New Zealand]

along they cut the wheat, thresh the grain from the ears and pour it into the lorries to take to the railway stations. The fields are so large and the grain is so plentiful, however, that it has to be stored in huge buildings, called elevators, until it can be carried away on the railway to the ships.

Wheat is not grown on all the prairie land. There are still many miles of prairie waiting for the farmers to plough. Some of

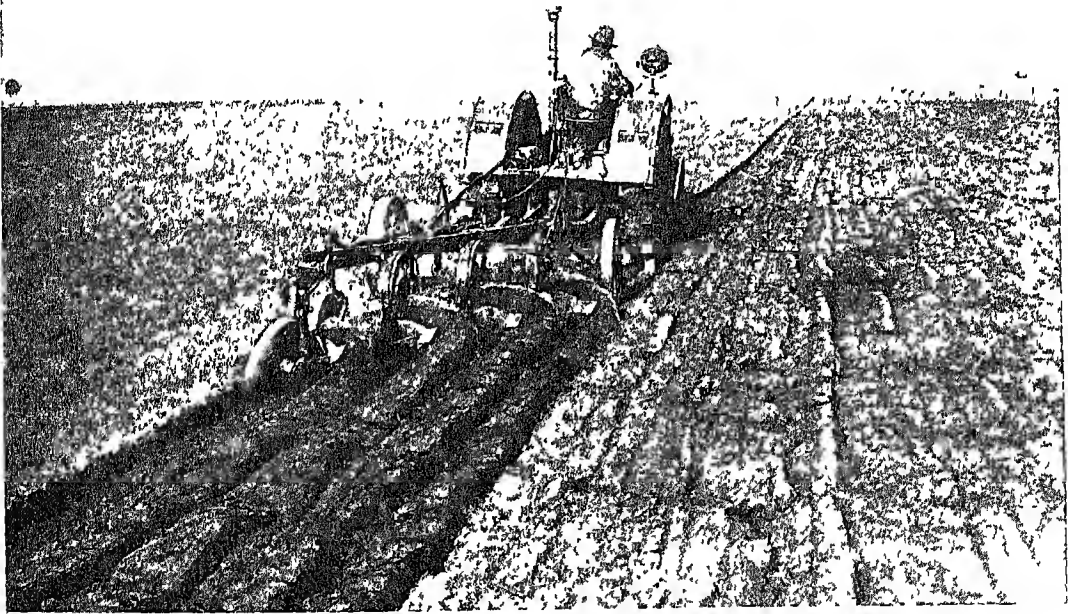
Are the trappers busy catching the beautiful silver foxes and the beavers? Are the Eskimos living in tents or are they snug and warm in their snow houses? If you think for a few moments you can easily answer these questions correctly

AUSTRALIAN AND NEW ZEALAND SHEEP

Many parts of the British Empire are cool lands like the prairie lands of Canada.

England and Scotland and Ireland are cool lands. So, too, is much of Australia and New Zealand and South Africa. In all these cool lands wheat is grown for bread making, and cattle and pigs and poultry are kept for food. Where the grass is long and green, farmers keep cows and make butter and cheese from the milk. Australia, like Canada, is a wonderful wheat-growing country, but it is specially famous for its sheep.

Accordingly, he sent to South Africa for some sheep, and three rams and two ewes arrived in Australia. They had been used to living in a dry sunny climate and were just the right kind to have. These first Australian sheep settled down happily in their new home, and they had so many lambs that twenty years later the Australians had more mutton and wool than they wanted, and were able to export some of it.



[By courtesy of the Canadian Government Motion Picture Bureau]
 PLOUGHING BY TRACTOR, WESTERN CANADA

When the British first went to Australia about two hundred years ago, it seemed a strange land. There was not a sheep to be seen. Then a settler named John MacArthur noticed the thick grass growing in large parts of the continent. "Surely," he said to himself, "fine sheep could be kept on the grass and would do well in this sunny land. Then Australians would have plenty of mutton to eat and plenty of wool to sell."

Nowadays there are so many sheep in Australia that if you were to gather together all the sheep in the world and divide them into six parts, one part would be made up entirely of Australian sheep.

The sheep farmers of Australia have a hard time in rearing their flocks. There are two things which every sheep must have—water to drink and grass to eat. In many parts of Australia water is terribly scarce.

It rarely rains, and there are few rivers and pools from which the sheep can drink. The farmers often have to dig deep down in the earth to find water.

In other parts of Australia there is plenty of grass, but even here the farmers have hard work. Many other creatures besides the sheep want to eat it. Sometimes great swarms of caterpillars appear, which crawl

Then, too, there are the rabbits. In the sunny land of Australia rabbits live in hundreds of thousands. They are a great trouble to the farmers, for they eat the grass which is badly needed for the sheep. Some farmers have to put up miles and miles of wire fences round their sheep lands to keep the rabbits out, and of course they kill many thousands of them every year.



[By courtesy of the Australian Trade Publicity Board]

DAIRY FARM, VICTORIA—AUSTRALIA

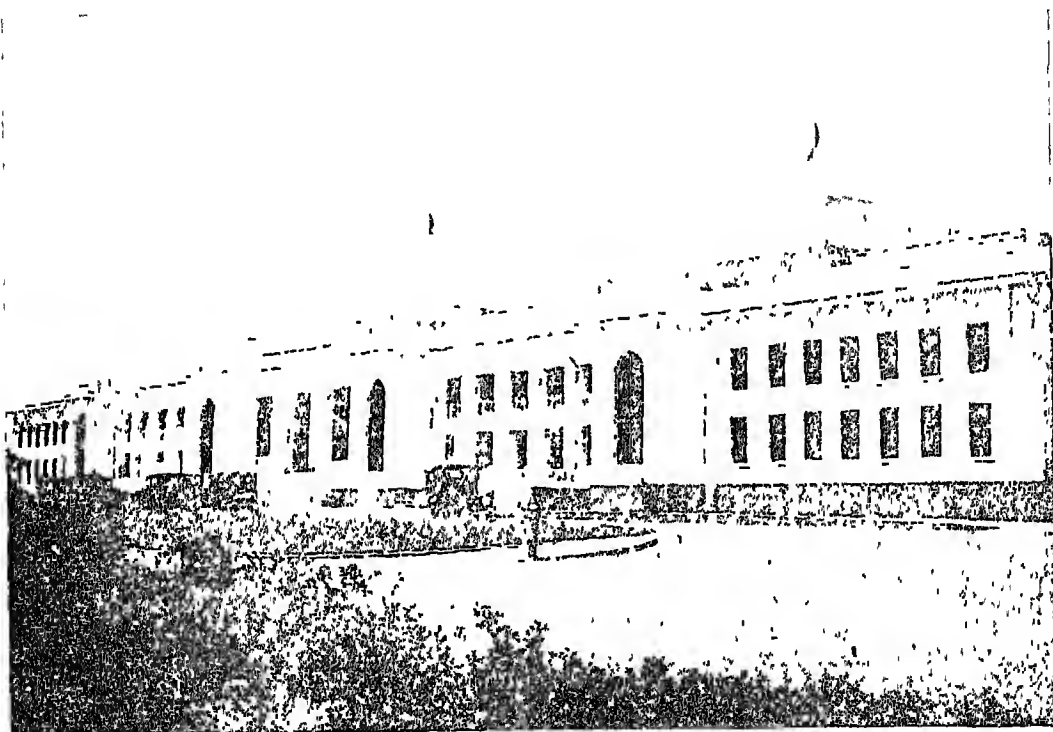
over the grass in millions, and nibble it away. Sometimes thousands of mice arrive so hungry that when they have eaten all the grass they go on to the farmhouses and eat the bedding, the carpets and even the furniture. Sometimes weeds are sown by the wind in the grass and grow up with it, making it unfit to eat. One of the worst of these weeds is the prickly pear. It is covered with little spines, and these make it very painful to root up.

Yet in spite of all these difficulties, the Australian farmers manage to rear hundreds of thousands of fine sheep every year. Their mutton and wool supply all Australia with food and clothing, and many shiploads of meat and wool are sent to England. A large part of the wool that is made into cloth for the people of England grows on the backs of sheep that live in the cool but sunny lands of far-away Australia. (See Class Picture 109, Making Cloth.)

NEW ZEALAND MUTTON

Sometimes in the butchers' shops you will see meat labelled "New Zealand Mutton" or "Canterbury Lamb." This meat has come all the way from New Zealand to England, and has spent six weeks on board a ship. "It is not possible," you will say. "How will meat keep for six weeks?"

periods without any rain at all. Where there is enough rainfall there are good rivers and grasses, and the English sheep in New Zealand did very well in their new home. They grew fat, and their wool grew thick, and so these sheep supplied as much good wool and juicy mutton as the New Zealanders wanted. In fact, they supplied too much, for there were still only a few



[By courtesy of the Australian Trade Publicity Board]

PARLIAMENT HOUSE, CANBERRA

If your mother were to leave a piece of meat in the larder it would go bad in far less time than six weeks. How, then, has this New Zealand mutton been kept so fresh that we can eat it more than six weeks after it has been killed?

It is a very interesting story. The English settlers who first went to New Zealand took with them a number of sheep. New Zealand is a good sheep-raising country, for plenty of rain falls there, and there are no long

people in the country, and those few could not possibly wear all the wool and eat all the mutton that the sheep gave them. The farmers began to grumble. "We are wasting money," they said. "The wool we can send away to other countries, but we cannot do that with the meat, for it would go bad during the long voyage to England. All the mutton which we cannot eat ourselves is wasted."

At last a wonderful discovery was made.

People had known for a long time that meat would not go bad if it were made so cold that it froze. Clever men began to think out a way of freezing meat on board ship so as to keep it fresh. They built great chambers inside the ships, and surrounded them with pipes let into the walls. Through these pipes a freezing mixture was passed, and this made the room so cold that anything which was put inside it would freeze. Then they filled the room with the carcasses of sheep, and soon these were frozen hard and covered with ice. In this way they could be carried safely to other countries many days' journey away, without going bad on the voyage.

To-day meat is not frozen but chilled, and this way of keeping meat fresh is called *cold storage*. As soon as the New Zealand farmers found that their mutton could be sent abroad in this way their worries were ended. They began to feed their sheep very carefully so as to make them fat, and New Zealand sheep are now kept chiefly for their meat, and not so much for their wool.

Next time you see New Zealand mutton at the butcher's shop, you will be able to tell your mother how it has been brought across the sea.

TEACHING HINTS

1. Cool lands.—Many parts of the Empire, including the British Islands, are in the region of "Cool Lands," and children will readily understand something of the climatic conditions in the prairies of Canada and the grasslands of Australasia. If they live in the neighbourhood of mountains reference should be made to the different types of vegetation to be found—trees in the warmer valleys at the base, grass on the slopes, and barren land near the summit. At this stage it will hardly be possible to give an explanation for the difference in climate in the north and south of Canada, other than to point out on the globe that the south is nearer than the north to the equator.

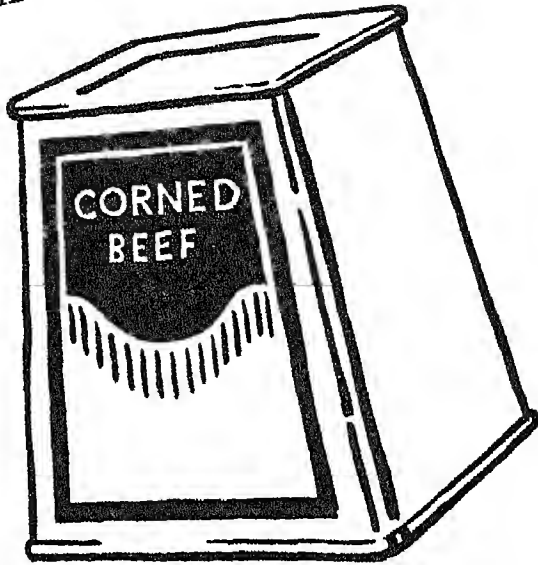
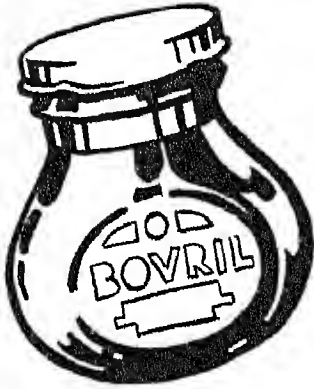
2. Meat packing.—All children are familiar with tinned (or canned) meats and fish, so that the opportunity should be taken to speak of this industry in connection with the cattle ranches. The industry of meat packing is carried out on a large scale in the United States and in South America, and it is increasing in importance in Canada.

3. Sheep-shearing.—The old method of shearing sheep by means of hand clippers has now been superseded by the machine clippers. There is an illustration of this, No. 84 in the portfolio. Country children will know a good deal about sheep dipping and other matters concerning sheep farming. It will add greatly to the interest of the lesson if children tell all they know about these matters. Wool is the greatest of all the Australian products. The country owes its pre-eminence as a wool-producing country to the fleshy grey-green shrub called the salt bush which covers large tracts of country. It smells of bad fish when crushed in the hand, and has a salty flavour, but it is excellent food for sheep.

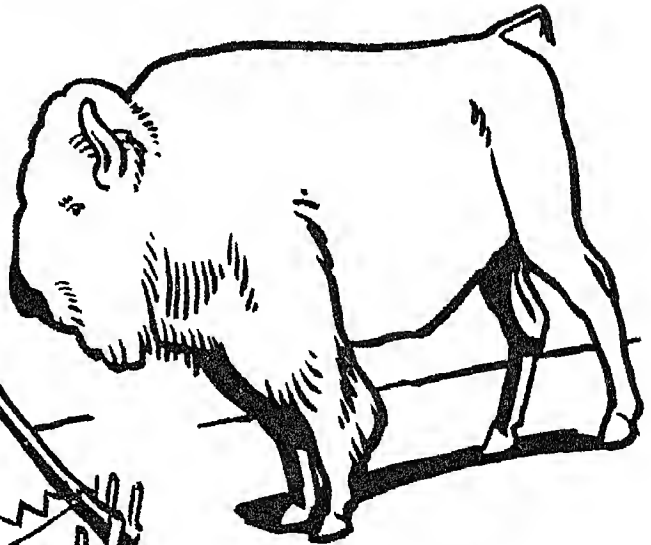
4. Memory work.—(a) Wheat is grown on the ploughed prairie lands of Canada. (b) The Canadian Pacific Railway carries the wheat many miles overland to the sea coast. (c) Machines are used in ploughing and harvesting. (d) Cattle live on the prairie grasslands. (e) Sheep are reared in Australia mainly for their wool. (f) Sheep are reared in New Zealand mainly for their meat.

5. Exercises.—(a) What country sends wheat to England? (b) What are the flat lands of Canada called? (c) How do Canadian farmers plough the land? (d) What is an elevator? (e) What do we call the meat obtained from cattle? (f) Why is sheep farming in Australia hard work? (g) How are rabbits kept out of the sheep lands? (h) What is Canterbury lamb? (i) How is meat sent to England from New Zealand? (j) What comes over the sea from Australia?

SKETCHES FOR THE BLACKBOARD



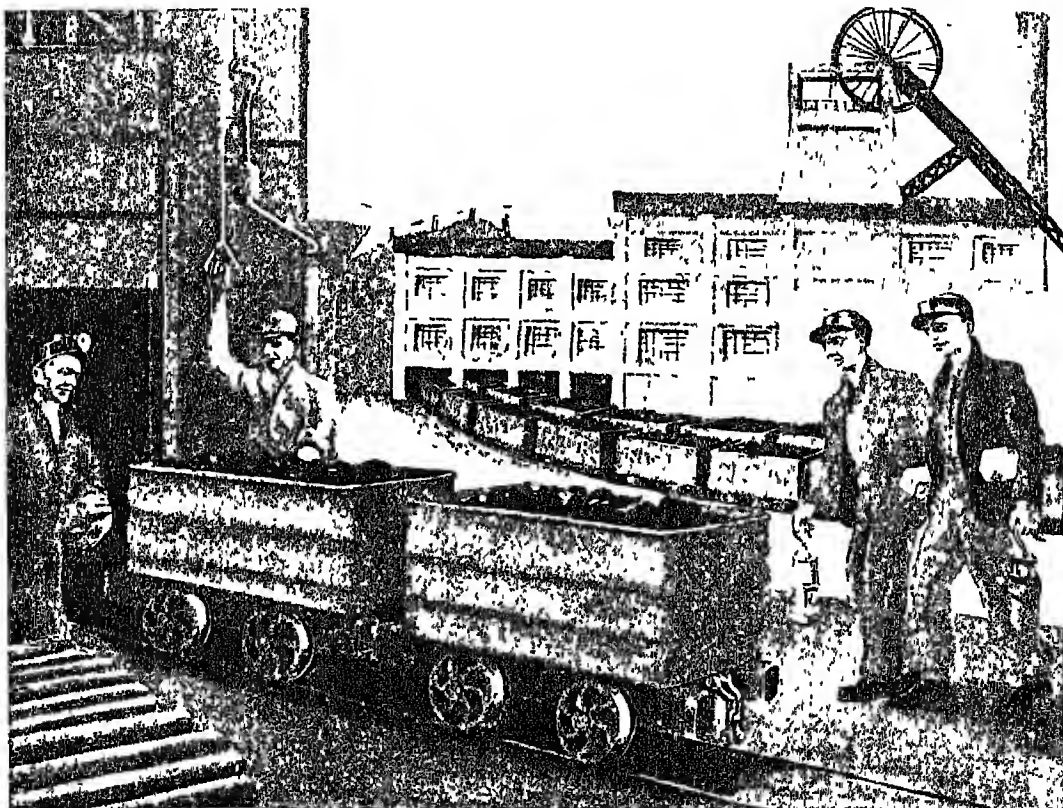
POT OF BOVRIL
INDIAN TEPEE



TIN OF CORNED BEEF
BISON

IV. COOL LANDS—INDUSTRIAL REGIONS

PICTURE REFERENCE



THE PIT-HEAD OF A COAL MINE IN THE UNITED KINGDOM

(Class Picture No 65 in the portfolio)

INTRODUCTION

THE "Children's Story" deals in a simple way with a survey of industrial life in England from early times to the present day, a coal mine, and the great industries of cotton, woollen and iron manufacture. There is enough material for two or three lessons, but the treatment will vary greatly according to the district in which the lessons are given.

We have taken a survey of the forests and grass regions of the cool lands and have seen that they supply man with some of his important foods and other necessary materials. We have also seen that both forest and grass areas lead to activity on the part of man, and tend to promote the birth and development of towns, the construction of roads and railways, and the rise of certain branches of the manufacturing

industry. The paper and pulp mills of eastern Canada, the flour mills, butter and cheese factories and leather works of the prairie provinces owe their origin and development to the forests and grasslands of the country.

The British Islands lie in about the same position with regard to the equator as the grass and forest belts of Canada. Owing to their small size and the consequent moderating influence of the sea they have a cooler summer and warmer winter than the interior of Canada, but the natural vegetation was originally the same—grass and trees. The forests have been cut down and only small patches remain. Man has been active in the British Islands for many centuries, and he has used the trees of the original forest to supply his needs in many directions. Most of the timber lie now requires has to be imported from the forest regions of other countries. The grasslands of the British Islands are used much in the same way as those in Canada. They have been turned into wheatfields or are used as feeding grounds for cattle and sheep. They do not supply enough wheat for the daily bread of the inhabitants of the British Islands, neither do they supply enough meat food, wool, or hides and skins to meet the needs of the people. In Canada the bulk of the people are concerned with farms or kindred industries and produce more than they require for themselves, but in the British Isles the great majority of people follow entirely different occupations.

A few centuries ago each area of the world had to be self-supporting. People knew only their own little area, and they knew nothing of other regions except by hearsay. It is difficult to realise the conditions of early times, but it must be remembered that primitive peoples certainly lacked most of the things that we possess and consider essential. Five hundred years ago the people of the British Islands had to be content with the things that their own country could produce. There were few roads, there were no railways or steamships,

and the people of one part of the country were more or less isolated from those in the remainder of the land. Yet, as we know, the people in those days were not savages. They were well clad, had a sufficiency of food, and had already made good progress in the art of manufacture. They had already acquired considerable skill in the spinning and weaving of wool and flax by simple looms, they were able to extract iron from the ore, and manufacture many things out of iron. The old buildings in the country testify to the skill of the people in the use of stone, timber and iron. It should be noticed that the early manufactures of the British Islands were based upon the local material, just as those of Canada to-day are based upon the material that country produces.

The early wealth of the British Islands consisted of wool, iron ore and timber. The hills of the country supplied the grass suited for sheep rearing, and the streams which had their birth in the hills supplied water for washing the wool, and power to work the simple machinery. Sheep thrive in cool lands, and the well-drained pastures of the hills and mountains are better fitted for sheep than cattle. The early woollen industry was located near the hills and mountains of Wales, the hills of Devonshire, Somerset, Wiltshire, Yorkshire and the south of Scotland. We are reminded of this by such things as Welsh mutton and flannel, Wilton carpets, Witney blankets and tweed cloth.

Iron ore, in early days, was smelted by the heat obtained from burning charcoal specially prepared from timber. Iron smelting was therefore carried on where the ore and timber were found close together. Some of the important ironworks in the country were in south-east England. The ore was mined in the hills and their slopes supplied the timber. Another region containing both timber and ore was the midland part of Britain near the spot where the large city of Birmingham now stands. We hear very little to-day about ironworks in south-east

England, but everybody knows that the Black Country, near Birmingham, is now one of the great areas of the world for the manufacture of a wonderful variety of articles made of iron and steel.

The reason for the decline of one part of the country and the rise of another can be made clear by a study of the changes

in the homes of the people, or in small towns containing people working at the same kind of trade. When the steam engine became sufficiently perfect to be of use in driving machinery large supplies of coal were needed. Manufacturers built their factories on the coal fields where the fuel would be cheapest, and the supplies



[Aerofilms, Ltd]

THE POTTERIES A VIEW OF HANLEY TAKEN FROM AN AEROPLANE

brought about in industry by the industrial revolution. James Watt patented his steam engine in 1769, and this was the beginning of the revolution in industry. Before that time the power required to drive machinery was provided by windmills and water wheels, by treadles worked by men's feet, and by horses harnessed to a beam and walking in a circle. Large factories were unknown, and things were manufactured

of raw material no longer determined where the work should be done. Steam power became cheaper and quicker than the older form of water power. Many machines could be driven by one engine, and it became necessary to have a large number of workmen in one building. Near the factories, houses were necessary for the miners and factory workers, and thus, in time, the coal fields developed into areas containing large towns

While these changes were going on, the outside world was becoming better known. New foods and material for manufacture were being discovered, and trade between the British Islands and the outside world was rapidly developing. Skill in spinning and weaving by machinery was gradually improved by the wonderful inventions of Arkwright, Hargreaves and Crompton. Improvements were made in the smelting of metals, and steamships began to take the place of the slow-moving sailing ships. The conditions to-day are the outcome of all these changes working together. The British people had an early start and had become skilled in spinning and weaving and in ironwork. When coal became necessary as a fuel, the position of the coal fields near the sea coast was a wonderful aid to the development of industry. As soon as it became possible to import the produce of other lands, it could be brought direct to the ports on the coal fields, and those ports could be the outlets for the manufactured articles which had to be sent overseas. Britain now manufactures enormous quantities of goods for other countries, but in order to do so it is necessary to import food and much of the raw material used in the factories.

It is as well to see clearly how much the people of the British Islands depend upon the inhabitants of many lands in order that they may be able to work and live. Although there is still a great wealth in iron ore and wool, both these materials must be brought into the country in large quantities. Iron ore is obtained from Spain, Sweden and Algeria, and wool is sent from Australia, New Zealand and South Africa. All the cotton, jute, hemp, silk, mohair and coconut fibre have to be imported. Cotton is obtained from the United States, India and Africa; jute is sent from Calcutta; hemp comes from India and the East Indies, silk is imported from China and Japan, mohair is obtained from South Africa, and coconut fibre from Ceylon and the East Indies. Britain is deficient in all the metals besides

iron, and has to go to other countries for her tin, lead, zinc, copper, silver and gold. Without imported food the people of the British Islands would soon be in a state of starvation. A certain amount of wheat, meat, fish, butter, cheese, fruit and vegetable foods are produced at home, but all the tea, coffee, cocoa, rice, sugar, oranges, dates, figs and bananas, come from other countries.

The British Empire, on which the sun never sets, can supply products which thrive in every type of climate. More and more the Empire is developing her resources and showing her ability to supply the mother country with her food and factory material. Many countries of the Empire are in tropical regions, which are less suited for some forms of factory work common in cooler climates. At the same time it is often more economical to exchange raw materials for manufactured goods, than to erect industrial plants with their innumerable requirements of machinery, supply of power, transport, trained workers and homes for their families. Such countries are therefore markets for British manufactured goods, and increasingly so as, with the advance of education, improvements in the scale of living are constantly going on.

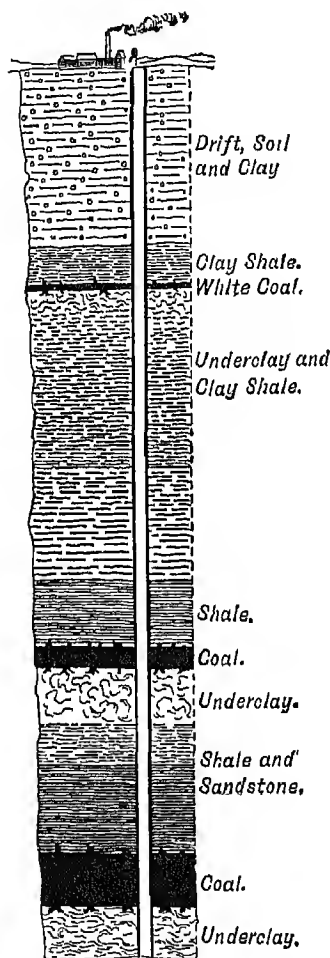
To obtain coal economically the utmost mechanisation is necessary. In a pit mechanical cutters, conveyors and devices for hauling laden tub-trucks are all to be seen. Above ground numerous buildings contain machines for dealing with the haulage between the surface and the pit bottom, for screening and cleaning the coal, and for filling railway trucks with the least labour and waste of time.

CHILDREN'S STORY

EARLY TIMES IN BRITAIN

The cool grasslands of the Empire include the British Islands. Long ago, before man lived in Britain, the land was covered with

immense forests. Huge trees, ferns and grasses flourished everywhere. Then the sea came over the land, engulfing all. The forests died. The great trees were overthrown, and the heavy pressure of water upon them gradually turned them hard



SECTION OF A COAL
MEASURE

and black. Long afterwards, the British Islands appeared again above the sea, and forests began to grow anew upon them. In course of time, man came to the islands, and made his home there. For a long while he lived by fishing and hunting. At length

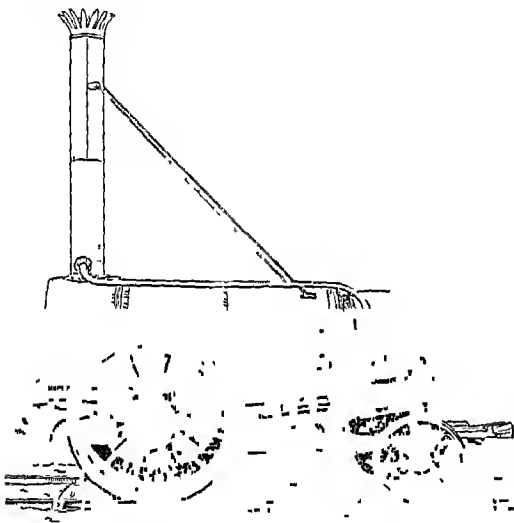
he began to grow crops. Then he cut down trees of the forests to build himself a house, and many families living near each other cleared away parts of the forests so that they should have fields for growing wheat and stretches of grass for their animals to eat. As time went on, the number of people in the country grew much larger, but they produced enough for their needs. They grew wheat for bread, and from barley they made drink. Their sheep provided them with meat and wool, and their cows supplied milk for butter and hides for leather. The women and girls of the families wove the wool into cloth. So for a long time the British people were farmers, and lived on the produce of their land. Gradually almost all the forests were cut down.

In those days, of course, people knew little of foreign lands, or of foreign crops. The roads were bad. There were no railways or steamships, and men living in one part of the country were strangers to those of another district. Yet they were clever in spinning and weaving wool, and knew how to obtain iron from the hills. Many old buildings in this country contain beautiful stonework, woodwork and ironwork fashioned by men of those times. In Wales, the old methods of weaving wool into cloth have never died out, and Welsh flannel is often hand-woven still. The Welsh obtained their wool from the sheep on the hillsides of Wales. English wool came from the sheep on the hills of Yorkshire and from the west and south country. In Kent were some famous ironworks. Iron ore was found in the hills, and there was also a large forest near by, so men cut down the trees and burned them for charcoal. With the hot charcoal they smelted the iron, and made it into iron goods.

STEAM POWER

Nearly two hundred years ago a great change took place. Do you know the story of the little boy who sat and watched his mother's kettle steaming? He saw the lid

jump up and down and wondered what would happen if it were tied fast and the spout stopped up. "Why, the steam would burst the kettle," you say. So the small boy thought "Steam is a mighty power," he said. "If it can lift a kettle lid, it can also be made to lift heavier things, and to work engines." When this boy, James Watt, grew up he spent his life in finding ways of using steam power, and so the steam engine was invented. Very soon it was put to work to drive machinery. It had to be fed by large supplies of coal, and now the people of the United Kingdom



GEORGE STEPHENSON'S "ROCKET"

began to find a use for those old forests long buried under the ground, for the trees that had once grown tall and green were now hard, shiny layers of *coal*. Soon afterwards, three clever men invented machines that would spin and weave cloth very quickly.

All these things completely changed the life and work of thousands of people in Great Britain. The richest coal fields were found to be in the north and middle of England, so they began to be mined. Great cotton and woollen factories grew up around the coal fields. People flocked from all parts

of the country to work in the mines and factories, and gave up farming and village life. Great towns grew up in the north and midlands, and from that time onwards the chief work of the people of the United Kingdom has been manufacturing. Farming is still done in many parts, but the wheat grown is not sufficient to supply the country with bread. As fast as the woollen, cotton and iron goods were made by the people, steamships carried them away to all parts of the world to be bought by men in lands where no factories exist. With the money gained from the sale of the manufactured goods, English people were able to buy wheat and other foods from abroad, and very soon they had to buy also a great deal more raw material for the factories, because they turned out their goods so quickly. Thus to-day Britain depends on other parts of the Empire for food and raw cotton, wool and iron ore, and sends out to them in return the finest manufactured goods in the world.

BLACK DIAMONDS

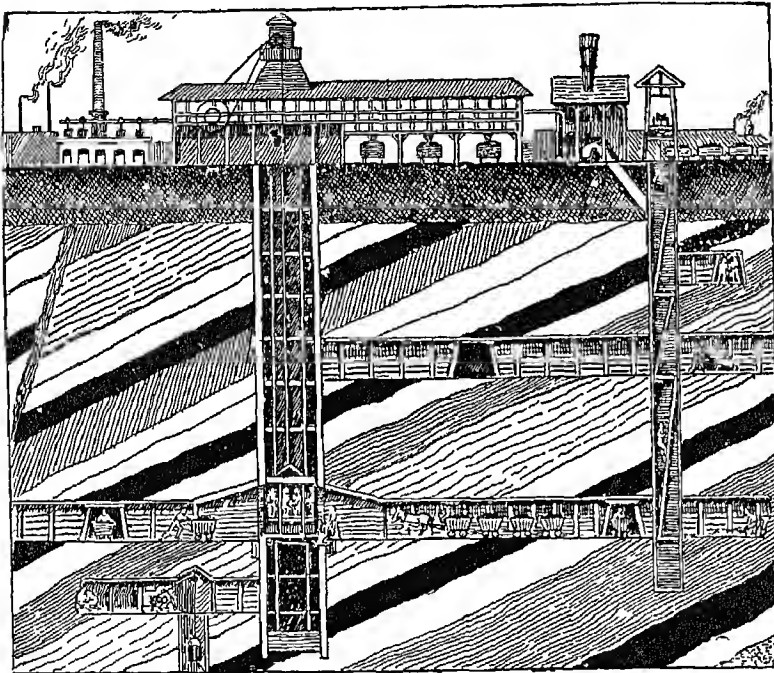
Have you ever heard of "black diamonds"? That is the name sometimes given to lumps of coal, because they are so precious. Some coal lies near the surface of the ground, and is easy to dig out. Most of it, however, is buried deep down in the earth, sometimes two miles underground, and mines must be made to get it out. Every day thousands of miners go down to their work underground. The entrance to a mine is called the *pit head*. This is the top of a great tunnel or shaft which leads down into the mine. Up and down this shaft men and coal are carried in a great lift known as a *cage*. The men step into the cage, and away they go, sinking at a tremendous speed, until they reach the bottom of the shaft. Here they find themselves in a clear space lighted by electric lamps. All around open out passages also lighted up, which lead to different parts of the mine. Each miner takes a pick to hew out the coal, and a safety lamp to light him

in dark parts of the mine, and he wears a safety helmet and boots with very stiff toes. His work is often more than a mile away underground and to get to it there is generally a ride part of the way and then a walk down gloomy passages to the layer or *seam* of coal. It rises up in front of him like a great black wall made entirely of coal, and this coal must be got out and sent back to the bottom of the shaft. The miner takes off all the clothing he can spare, for there

machinery. The pit ponies live in the mine, and never see the sun or the light of day. When the truck arrives at the bottom of the shaft it is pushed into the cage and carried up to the pit head. There it is weighed, and its weight, together with the name of the miner who filled it, is written down. Eventually the coal is tipped out and taken away to be sorted, while the empty truck goes down the shaft again.

A miner's life is full of danger; accidents

can easily happen to men so deep down. Sometimes the coal or the rock falls and crushes them. Sometimes the danger comes from foul gases in the mine. One kind of gas from coal chokes anyone who breathes it. Another will burst into flame and cause a terrible explosion. Sometimes, too, underground springs of water burst through the walls and flood the mine. Coal is so much needed, however, that mining goes on in spite of perils. The great factories, the railways, the steamships, all require coal; we need it ourselves to warm our houses and cook our food; and coun-



SECTIONAL VIEW OF A COAL MINE

The black bands are coal, the rest is clay, shale, or sandstone

is not very much fresh air, and being so far below the earth it is very warm. Then he sets to work.

In some parts of the mine he must lie down on his side and chip with his pick to cut under the wall. But in most places there is a powerful machine to help him. It rips away the coal, moving a yard a minute, and throws it on a moving belt. This carries it off to a truck called a tub, which is then pulled away either by a pit pony or by

tries that have no coal buy thousands of tons from Britain every year.

FACTORIES

Since the days when the people of the United Kingdom supported themselves by growing all their own food, the population of the country has become very much larger. Great towns have sprung up in the north and midlands, where before there were only

tiny villages. The people in these towns work at three great industries—cotton, woollen and iron—and coal is required to drive machinery for them all.

The cotton port of England is Liverpool, and there the steamers arrive from America, India and Egypt with bales of raw cotton. The bales of cotton are taken to the cotton mills of towns in Lancashire, where the cotton is made into cloth. Raw cotton is the white fluffy down wrapped round the seeds of the cotton plant. The separate threads or hairs are very fine and delicate, and when they become dry they are inclined to snap. Lancashire, in the north-west of England, has very damp air, which keeps the threads moist for spinning. When the bales of raw cotton arrive at the factories they are put through a machine which breaks them open and cleans away the seeds, twigs and leaves mixed with the cotton. This machine has teeth like a comb, and is called a carding machine. Other machines beat out and flatten the cotton, and separate all the delicate threads. It is then ready for spinning into thread or *yarn*. The fine hairs of cotton are wound on reels called bobbins, and machines twist the threads together to make them strong. The machines make a terrible roaring noise, and when anyone first goes to work in the spinning room the noise almost deafens him. After a while, however, he grows so used to it that he does not notice it.

When the thread is spun, it has to be woven into cloth. This is done on great machines called looms, which make a deep humming noise. The cloth is then dyed beautiful colours, or printed with pretty patterns. Sometimes the threads are dyed, and patterns are woven into the cloth while it is being made. Many of you may have seen pictures of people weaving, and will know that a loom is a kind of frame on which are fixed the long warp threads. Then the weft threads are passed in and out of the warp threads, so forming cloth. Many of the cotton materials made in Lancashire now have a beautiful, soft, silky finish to

them, and dressmakers often use them in place of silk. Here are a few of the articles made from cotton in Lancashire to-day—sails, aeroplane wings, calico, shirts, sheets, dresses, linings, flags, handkerchiefs, knitted cotton vests and combinations, stockings, gloves, curtains, lace, tape, sewing thread and bandages. Chilled meat is wrapped in cotton cloth, and plants that need shelter in hot lands are shaded with it. Everywhere in the world the cotton goods of the United Kingdom are found, and more than 500,000 people work to make them.

We are all glad, on a cold winter night, to be tucked warmly in bed under two or three fleecy woollen blankets. When bitter winds are blowing we put on thick woollen overcoats before we venture out. We know that woollen things will keep us warm. If we wore only cotton all through the winter we should shiver with cold. Woollen goods are made in Yorkshire, and Bradford is the centre of the greatest wool-manufacturing district in the world. Over 250,000 persons are employed in the factories.

How is the wool obtained? It is sheared from the backs of sheep who live on the hills in the south of England, in Australia, New Zealand and South Africa. Sheep are reared for their flesh, called mutton, and for their wool. Some sheep supply beautiful silky wool, and very poor meat. Others give us very good mutton and poor wool. Another kind of sheep is good both for wool and mutton. English and New Zealand sheep are of this last kind. The finest fleeces of all come from *merino* rams in Australia.

When it arrives, the raw wool is greasy and has to be scrubbed clean. After cleaning it is carded or combed into separate strands. These thin strands then have to be spun into strong yarn, and woven into cloth just as the threads of cotton are woven.

IRON

When mining in the mountains for coal, men often dig out rock which contains a

metal called "ore" in it. Alongside the coal in the United Kingdom large supplies of *iron ore* are found. The rock containing the iron ore is called ironstone. After being dug up the ironstone is first laid up in heaps and burnt to free it from impurities. The remainder is put into what is called a *blast furnace*, which is like a very large chimney. With the ironstone are put loads of coke and limestone and the whole is made to burn. Blasts of air are forced through the mixture from the bottom to make the fire fierce. That is why the chimney is called a *blast furnace*. The heat is so great inside the furnace that the metal in the ironstone melts, and as it is heavy it sinks to the bottom as a white-hot liquid. A trap door is opened at the bottom of the furnace and the molten iron is allowed to run out into trenches on the floor, which have been lined with sand. Here it cools to form bars of solid iron. This is called *pig iron* for the little bars look somewhat like young pigs as we sometimes see them lying down by the side of their mother. The melting of the ore in the blast furnace is called *smelting*. Much of the ore is brought to the blast furnaces by steamers from foreign lands, and the chief place in England for smelting iron is at Middlesbrough at the mouth of the river Tees in Yorkshire.

Much of the pig iron is remelted and "cast." It is then made into many kinds of iron goods such as iron bedsteads and the stands for your school desks. Cast iron easily breaks, so much of the pig iron is made by other processes into *steel*, which is very hard and strong. Railway engines, railway lines, bridges and ships are made of steel. Treated in another way pig iron is made into *wrought iron* which will bend but not easily break. The iron that a blacksmith heats in his furnace and hammers into horseshoes is wrought iron. In the middle of England is the large city of Birmingham which is famous all over the world for its *hardware*, for that is the name given to things that are made of iron and steel.

TEACHING HINTS

1. Occupations.—It is interesting and instructive to compile, at the suggestion of the children, a list of occupations by which man earns his daily bread. By the study of such a list it can be shown that the kind of work undertaken is determined by the nature of the locality in which man lives. It can also be shown that no occupation stands alone, but that work in one direction leads to work in many other ways.

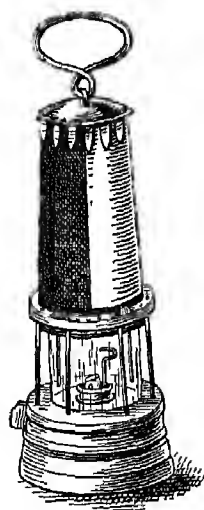
2. Weaving.—Woven cloth consists of two sets of threads—warp and weft. The warp threads run longways and are usually stronger and harder than those of the weft. The weft threads cross the piece at right angles. The quality is determined by the number of warp and weft threads per inch. (See Lesson IX in the history section of this volume.)

3. Loom.—In the old days of hand looms the looms were scattered about the country, two or three in a house, operated by as many people. The weavers owned the looms, and work was found for them by the merchants in the towns. With the advent of the power loom, the private system of weaving gave way to the factory system, in which all the machinery is under one roof. Spinning and weaving became two separate industries.

4. Coal mining.—Manual labour is still necessary in some places for cutting the coal although mechanical tools worked by compressed air or electricity are in general use in mines. The collier's pick is called a *pik*, *mandril* and *skitter* in different districts, the men are called *pikemen* or *hewers*. The most important operation in cutting coal is called *holing* or *kerving*. It consists of undercutting the coal by means of a groove 12 or 14 in. wide at the face and sloping down to nothing at the far end, which is about 3 to 4 feet in depth. There is then left an overhanging portion of coal. To

prevent the wall of coal from falling down before he is ready for it, the pikeman puts wooden wedges in the cracks as he works. After these supports that hold up the undercut coal are removed, it either falls of its own weight, or is brought down by driving wedges along its top, or by blasting. The process of holing coal by hand is one of the severest kinds of human labour.

5. Safety lamp.—This lamp is used by miners in coal mines where there is danger of explosive gases. The first practical lamp was made either by Sir Humphry Davy in London, or by George Stephenson while working at a colliery in Northumberland. Davy's principle is the basis of all subsequent designs. He found that if the flame of the lamp were enclosed in wire gauze, there was no danger of its setting fire to the explosive gases found in the mine. Wire gauze is a good conductor of heat and dissipates the heat of the flame so that the gas in the surrounding air outside the gauze is not heated sufficiently to burst into flame or explode. In the presence of fire damp,



DAVY LAMP

moreover, the flame of the safety lamp changes colour, and so warns the miner of danger. Modern safety lamps have draught screens, and glass cylinders around the lamps to give better illumination. Most of the lamps now in use, however, are electrically lighted.

6. Fire damp.—This is the name given to marsh gas, or carburetted hydrogen, which occurs in coal mines. It is formed by the decomposition of vegetable matter, and sometimes accumulates in a bed of strata, where the stroke of a pick may suddenly release it. Mixed with air, fire damp is highly explosive; in its purer state it burns quietly with a blue flame.

7. Flannel.—This is a variety of soft, woollen textile. Wales appears to have been the first home of flannels, the close hard-wearing material being of special value to workers among the mountains.

8. Memory work.—(a) Britain belongs to the region of cool grasslands. (b) It was once covered with forests. (c) Men cut down the trees and grew wheat. (d) Iron furnaces were heated with charcoal. (e) Steam engines are fed with coal. (f) Cotton, woollen and iron goods are made in British factories.

9. Exercises.—(a) What work did men do in England a thousand years ago? (b) Who found out and used the power of steam? (c) How is coal made? (d) What would you see inside a coal mine? (e) How do miners obtain the coal? (f) Why did many people give up farming the land? (g) Why is Lancashire air very good for cotton spinning? (h) What is yarn? (i) Which countries send raw wool to the United Kingdom? (j) What is done to iron ore?

V. WARM LANDS WITH WINTER RAIN

PICTURE REFERENCE



CYPRUS IN SUMMER

(Class Picture No 66 in the portfolio)

IN the picture we see a line of camels on the march along a road in Cyprus. Cyprus is a part of the Empire—an island in the Mediterranean Sea. Each camel is loaded with sacks of sweet purple locust beans or carobs, which will be sent by ship to England and other lands. The camels, the bright sun and the white dusty road make Cyprus seem to be hot and dry.

Across the bare plain are some tall, dark, pointed trees called cypresses, and also a grove of bushy olive trees. Far off are high mountains and at their foot is a town with graceful buildings of white stone. Goats live among the mountains and some have been brought to the plain to feed on the tough grass. The food is not good enough for dairy cows and so the goats take their place.



[Reproduced by permission of the Controller of H M Stationery Office.]

VINES

INTRODUCTION

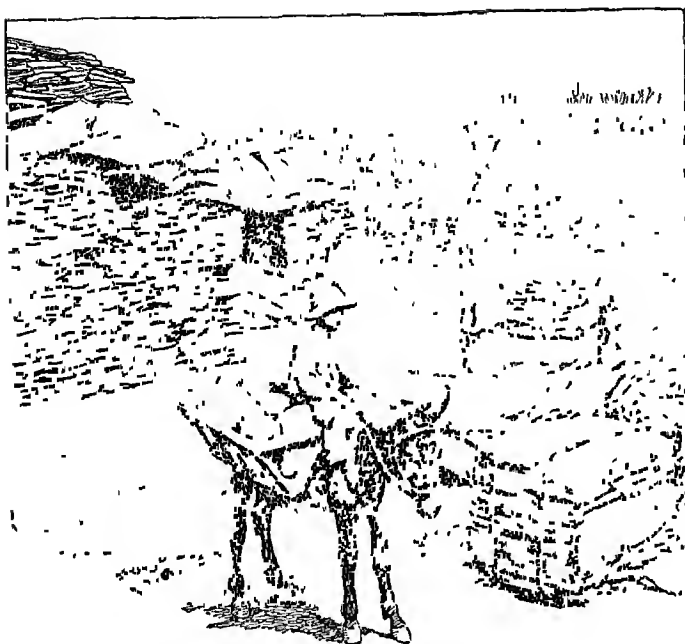
The western sides of the cool lands receive the west winds from the ocean at all seasons of the year, and each month receives its share of the rain of the year. Lands placed at about the same distance from the equator as Spain, the south of France, and Italy have the west winds only during the cool season of the year. The winter months are therefore the wet months. The summers are remarkably dry and the skies are clear and blue.

By several devices nature has equipped the plant life of Mediterranean lands for dry summer conditions. Some plants have very long roots which penetrate deeply into the soil in the search for water. The hot summer sun quickly dries the top layer of soil, but the lower layers retain their moisture for a long time. Other plants have thick, fleshy roots which act as storehouses for the water obtained during the wet

season. Plants lose a great deal of moisture from the leaves, just as human beings do from the skin. In the lands of dry summers small dry leaves and thick leathery leaves prevent moisture from escaping readily. The cork oak similarly retains its moisture because its thick rough bark is a protection against excessive transpiration.

In Mediterranean lands there is a remarkable absence of fresh green grass during the late summer months. The roots of grass penetrate only a short distance into the ground, and this top thin layer is baked hard and dry as summer advances. Under such conditions cattle are not numerous and there is a scarcity of home-made butter and cheese. The oil of the olive is often used as a substitute for butter.

Fruit production is a characteristic feature of lands of winter rain and sunny summer skies. Grapes of many kinds, olives, figs, peaches, apricots, oranges, lemons, almonds and mulberries are successfully grown. The



STACKS OF CORK—SPAIN

cultivation of grapes leads to the manufacture of wine and the preparation of dried fruit such as sultanas, raisins and currants. From olives, olive oil is extracted, and, in many parts, soap is manufactured from the oil thus obtained. In regions where the mulberry is grown silkworms are reared on the leaves. The manufacture of silk is an industry which arises in Mediterranean lands. Some of the fruits, such as apricots and peaches, are preserved in cans for export to other lands.

Cyprus, the largest island of the Mediterranean Sea, after Sicily and Sardinia, is inhabited mainly by people of Greek or Turkish origin, but it is a British possession. Fruits of many kinds grow in luxuriance, the most important being oranges and lemons, some of which go to England, but most to Egypt. Grapes, figs, peaches and apricots are also extensively grown. Cyprus is the second most important silk-producing country in the British Empire. The manufacture of wine is an ancient industry in the island.

The region in which Cape Town stands in South Africa has the temperature and winter rain of Mediterranean lands. It receives annually about 25 in. of rain, and of this only about 6 in. fall during the six hottest months. Orchards and vineyards are numerous near Cape Town. The vine was introduced by the Dutch about 300 years ago, and the cultivation has been so successful that to-day over a hundred million vines are growing. They are grown to produce fresh fruit, raisins, wine and brandy. Oranges are successfully cultivated. Summer time comes to South Africa during the period of the English winter, that is why South African oranges reach England just when summer is

beginning. At one time English people could get oranges only in winter. To-day South African oranges can be bought everywhere from May until the middle of autumn. The fruit is transported in cold storage and arrives at Covent Garden market in beautiful condition.

The south-western parts of Australia also have the Mediterranean climate of summer sunshine and winter rain. Perth, in Western Australia, has about 33 in. of rain each year and of this only about 5 in. fall during the six hottest months. It is about a hundred years ago that the vine was introduced into Australia, but to-day vineyards cover over a hundred thousand acres. The purposes for which grapes are grown are for wine making, for drying and for the fresh fruit. Wine making has not developed so rapidly as the suitability of the climate would appear to warrant, but there has been a remarkable development in the production of raisins, sultanas and currants. The raisin is a white grape which contains seeds, the sultana is a white seedless grape, the currant is a small, black, seedless grape.

The sultana is the most difficult of the dried vine fruits to grow. It is the most delicate and the most easily susceptible to unfavourable weather conditions. Only those areas where water supplies are accurately controlled do justice to it. The best qualities of fruit are obtained from the valley of the river Murray.

The production of dried fruit involves several processes, in none of which, after the picking process, is there contact by hand. The ripe fruit is dipped in a slightly alkaline solution, and this causes microscopic cracks in the skin which facilitate the drying process. Drying takes place on racks. Harvesting occurs in the early part of the year and the dried fruits reach England by the end of April.

Little over a century ago fruit (except during the summer and early autumn months) was almost entirely the privilege of those who lived in the country and possessed gardens of their own. The two great inventions of cold storage and canning were still to come. To-day the fruits of the world can be transported in cold storage thousands of miles across the ocean without losing freshness or quality. By canning fruit it can be preserved an indefinite time. The air-tight tin or bottle in which ripe, juicy fruit is sealed, ready to be eaten without further treatment, has come to be recognised as one of the most valuable labour-saving devices. The canned and bottled fruits of Australia are now a large export of that country.

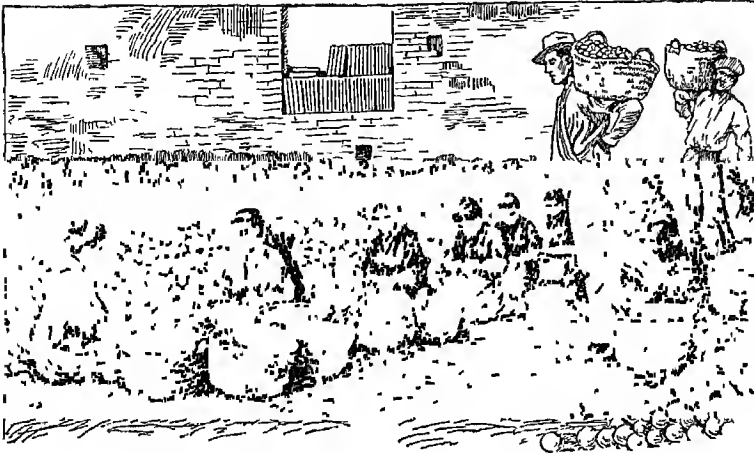
Considering the enormous extent of the British Empire it is remarkable how little of it has the true Mediterranean climate. It is to south Europe and north-west Africa that we must turn for the great areas of winter rain. Spain, southern France, Italy,



PICKING, SORTING AND PACKING MALAGA GRAPES

Greece, Morocco, Algeria and Tunis are the lands of the citrus fruits, the cork oak, the mulberry, the olive and the vine. Seville and Denia in Spain are noted for their oranges, Palermo and Messina in Sicily are prominent for their orange and lemon groves, Patras in Greece is world famous for its currants. Silk goods are manufactured and exported from Spain, France and Italy. Olives and olive oil are characteristic products of the south of France and Tuscany in Italy. Spain is noted for its port and sherry; France for its champagne, burgundy and claret. Every country bordering the Mediterranean Sea manufactures wine.

The Mediterranean region has been of



SELECTING AND SORTING ORANGES AT VALENCIA

importance from very early times and ships plied upon its waters many centuries ago. On its shores were the early civilisations such as those of Phoenicia, Egypt, Greece and Rome. The almost tideless waters of the sea and the long, broken character of much of the coast line created a spirit of adventure and a love for the sea. Venice achieved greatness as a



ORANGE TREES—WHITE RIVER, EAST TRANSVAAL

[Courtesy South African Railways]

port for the reception of the riches of the far East. Commercial greatness has departed from most of the peoples bordering the Mediterranean, but the opening of the Suez Canal in 1869 has tended to give a new importance to several of the Mediterranean ports, especially those of southern France and Italy. Genoa, Naples and Marseilles are now important seaports.

CHILDREN'S STORY

CYPRUS

We now come to lands in our Empire where very little rain falls the whole summer long. The winds bring rain to these countries during the winter, but all through the summer the people living in them enjoy

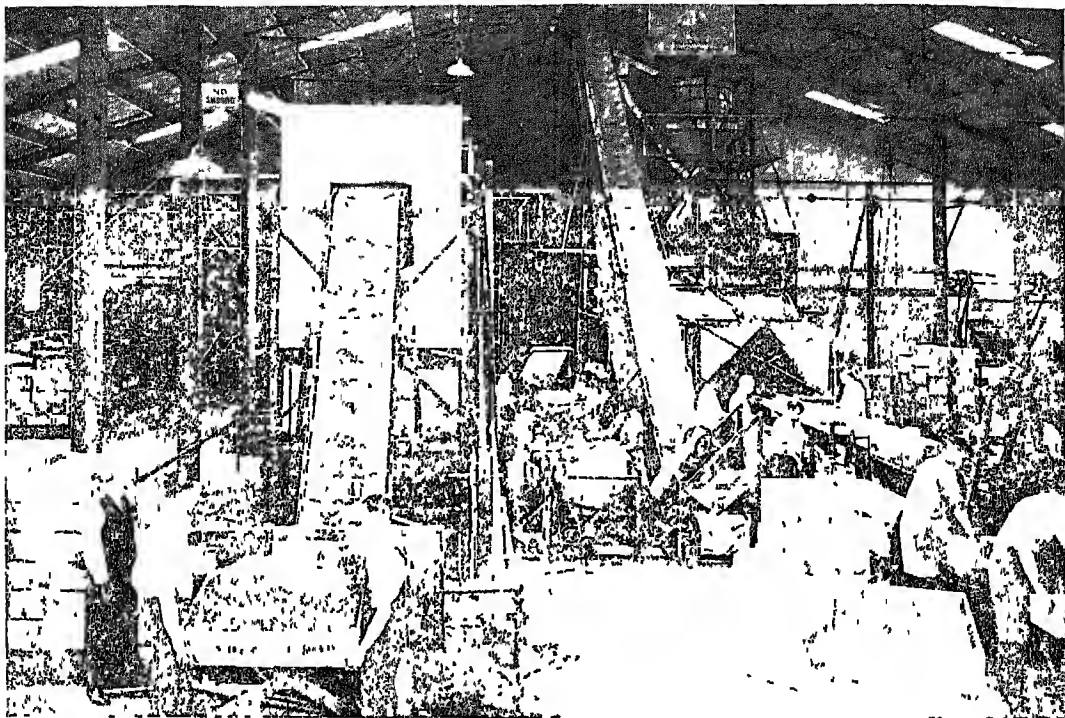
warm sunshine and fine weather. The plants that grow have to search deep down in the earth for water, and protect themselves against the hot sun, which would dry them up. Consequently, some have very long roots. Others store up water through the winter in thick, fleshy roots or stems. Their leaves are either very small, or stiff and shiny, so that the sun cannot hurt them. The leaves of the olive trees are covered with small silvery hairs, so that they look grey instead of green. Often the bark of the trees is thick, and the fruits are tough-skinned. Some of these tough-skinned fruits are grapes, oranges and lemons.

The summer sun bakes the grass brown and dry, so that there is little food for the cows, and butter and cheese become scarce.



[Courtesy South African Railways

DRYING FRUIT IN TRAYS—ORCHARD SIDING, CAPE



CLEANING, STEMMING AND GRADING FRUIT, MILDURA PACKING SHED, VICTORIA—AUSTRALIA

Then the people of these lands use olive oil for butter, for olives grow in plenty. They are bonnie laughing people, who like to sleep in the middle of the day, when the sun is hottest. They are proud of their lovely lands, their vineyards and orange groves and their long bright summers.

One of these warm lands with winter rain is called Cyprus. It is an island washed by the gentle waters of a warm, blue sea. All the large countries within a short sail of Cyprus have wished to own this island, so it has been governed by many different people. Now it forms part of the British Empire. There are great hills on the island, and in the middle of it a long stretch of flat land called a plain. This is divided amongst the people of the island, and almost every man has his own piece of land on which to grow crops. Those men who own

the largest tracts now use machines on their land for ploughing and gathering in the harvest, but the owners of small patches plough their land in the spring with wooden ploughs drawn by oxen, just as their great-great-grandfathers used to do long before them.

THE WONDERFUL VINE

Another plant that grows very well in Cyprus is the vine, from which grapes and wine are obtained. There have been large vineyards in Cyprus ever since olden times, so the people know how to produce very fine grapes. (There is a vineyard in Class Picture No 91.) The vine is a climbing plant, like the scarlet runner bean which twines round the bean sticks in the garden. The men of Cyprus cut the vines down into

bushes, however, for then the bunches of grapes all grow within reach. Often the vineyards are planted on gentle slopes among the hills, and then donkeys carrying big baskets are needed to bring the ripe fruit down the stony narrow paths. The grapes need months of sunshine to ripen them, and then they turn either a dark blue colour, and are called black grapes, or a pale green, and are called white grapes.

When the grapes are ripe, the owner of the vineyard sorts them out for different purposes. A certain number of black bunches and a number of white bunches are cut off the vines, carefully packed in boxes of cork dust, and sent by ship to England and other countries for people to eat. You have all seen these in the green-grocers' shops. Other bunches of white grapes are dried, and are called raisins. There are two kinds of these, the raisins we put into Christmas puddings, and those we eat with almonds, called Muscatel raisins. The Muscatels have their stems cut through on the vines, and are left to dry in the sun. The Christmas pudding raisins are dried in ovens. There are also some smaller white grapes which have no pips in them. These, when dried, are called sultanas. There may still be more vines bearing very small black grapes, also with no pips in them, and these are dried and called currants. What should we do at Christmas time if no grapes were grown in warm lands with winter rain? There would be no raisins, sultanas, or currants for the Christmas puddings!

There is still another way of making use of grapes. Very often, the whole produce of a vineyard is turned into wine. Every autumn, when the grapes are ripe, the pickers go out and gather the heavy bunches into baskets, which they carry on their backs. These baskets are emptied into wagons, and the grapes are carried off to cool cellars, where they wait to be made into wine. In wine making, the juice is squeezed out of the grapes first. This used to be done by putting the bunches into a

huge pan shaped like a bowl, and letting bare-footed men dance on them, to press out the juice. Nowadays, however, the grapes are squeezed through wine presses worked by machinery—a much better plan. The juice flows into bowls, and is left to ferment or become bubbly. Finally it is poured off into bottles and casks, and sent away to many lands. Red wine is made from black grapes, and white wine from white or black grapes.

Other lovely fruits besides grapes are grown in Cyprus, as, indeed, they are grown in all warm lands with winter rain. We find groves of oranges and lemons, and orchards of cherries, peaches, apricots, olives, figs and mulberries. On the mulberry leaves silkworms are reared, and Cyprus silks and velvets are famous throughout the whole world. At the beginning of the century, when the king's palace in London needed new curtains and hangings, they were all made of Cyprus silk and velvet.

Look at the globe now and try to find Cyprus. It may not be marked, as it is very small, but you can find the other Empire lands which have winter rain and warm, dry summers. They are South Africa and parts of Australia. In these lands, too, are grown the thick-skinned fruits of Cyprus. So many are grown that a great number are canned, and then they are ready for use at any time of the year. Notice that Africa and Australia lie south of the equator, and consequently they enjoy their summer time when it is winter in Britain and Cyprus. Because of this we are now never without fresh fruit. When the season for fruit from Cyprus is over, it is just beginning in the other lands. The fruit is stored in very cold rooms on the great ships which carry it over the sea.

JAFFA ORANGES

There is another notable land called Palestine which has a warm dry summer. Look for it on the globe. There is a famous port in Palestine, from which ships bring us

hundreds of boxes of beautiful oranges every year. This port is Jaffa, and the oranges are called Jaffa oranges. Jaffa is very near Jerusalem, about which we learn in the Bible. Behind Jaffa lie miles of lovely orange groves. The trees are planted in rows like the apple trees of an English orchard. All the year round their glossy dark green leaves quiver in the soft breezes, and when summer comes, the trees are crowned with graceful, snow-white blossom. The scent of the flowers is delicious. It can be smelt half a mile away, and bees come buzzing along in thousands. Arabs and Jews tend the groves, and spray the trees to kill any insects on them. Soon the fruit appears, green at first, gradually changing to gold. If there should be any danger of frost in the night, fires are lit in small wire baskets, and placed about the groves. These fires give off a blanket of smoke, which warms the air, and prevents the frost from harming the fruit.

You can easily tell a Jaffa orange when you see one, because it is oval, not round. It is very juicy, and has no pips. Jaffa oranges begin to arrive in Britain about November, and come to an end in April. Before the last shipload arrives from Jaffa, the first cargoes appear from Cape Town in South Africa, so the supply of oranges in the world never fails. They are often not quite ripe when gathered, but go on ripening while they cross the sea. They are cut off the trees with scissors. The pickers wear gloves so as not to scratch the skins of the fruit. At the packing house the oranges are sorted, wrapped in tissue paper, and packed in boxes so closely that they cannot move. Large and small oranges are packed separately. About a hundred large oranges, and about two hundred small ones, will fill a box. Orange trees will bear fruit for a hundred years or more, and yield fourteen or sixteen thousand oranges every season, so it is a splendid trade. The oranges sent to other lands from Cyprus, Africa and Australia are all sweet, like the Jaffa oranges, but round instead of oval.

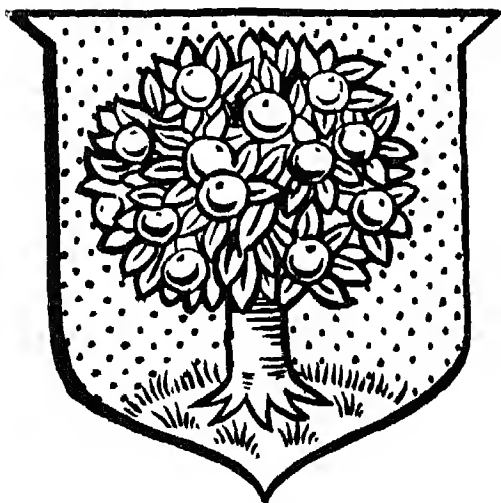
TEACHING HINTS

1. Use of globe.—When giving the lessons use the globe freely and see that the children have as clear an idea as possible of the positions of Cyprus, South Africa, Australia, Palestine and Jaffa. Revise the position of the equator, and point out the northern and southern hemispheres.

2. Cyprus.—Here is further information which the teacher can use at discretion for completing the picture. The fertile plain of Cyprus is called the *Messaoria*, and the mountains fringe it on the north and south. Anciently Cyprus was famous for copper, to which it gave its name. The Phoenicians and Romans mined it. Cyprus has been occupied in turn by the Greeks (Alexander the Great), the Persians (Haroun el Raschid of the *Arabian Nights*), the Romans, Richard Lion-Heart, the Venetians (Shakespeare's *Othello*), the Turks and, finally, the British. Trees cover one-fifth of the island, but the ancient forests have long been used up as fuel, etc. Large herds of goats, now kept under control, also helped in the destruction by stripping the bark from the trees. Without sufficient natural vegetation to provide a catchment, the winter rains rapidly drain away and people depend largely on wells and storage tanks for water. Diving for sponges is a notable coastal occupation, and mules and donkeys are part of the daily scene everywhere.

3. Silkworms.—The eggs, of which the female moth deposits about five hundred, are laid in August and September, and hatched the following May, when the mulberry comes into leaf. The eggs when hatched produce small caterpillars which feed greedily for more than a month. The caterpillars then sicken and cast their skins and in a day or two begin to eat again. This process happens four times and then, when they are about three inches in length, they cease to eat and begin to spin their cocoons. The threads emerge from two little openings in the head and these are

SKETCHES FOR THE BLACKBOARD



LOCUST BEAN
ARMS OF THE ORANGE FREE STATE

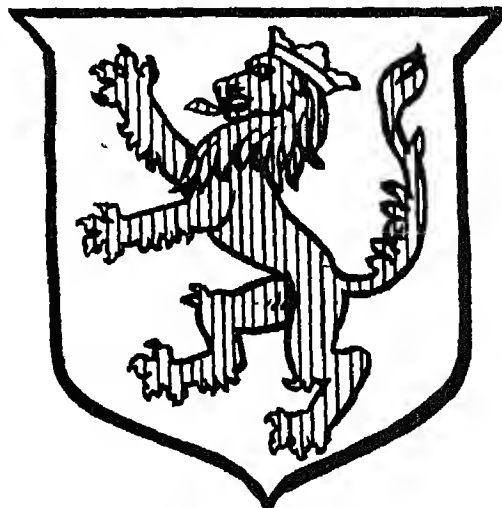
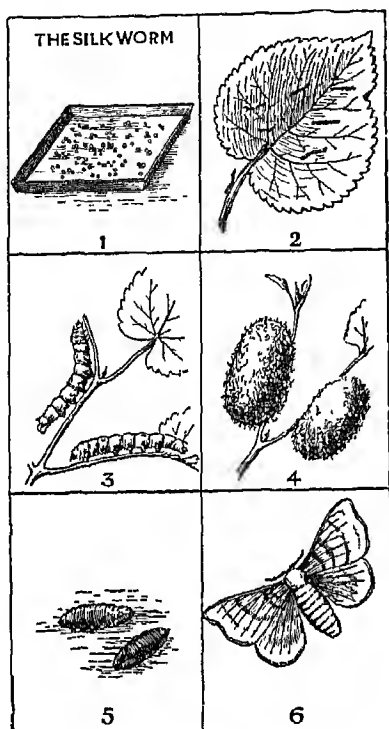


FIG LEAVES AND FRUIT
ARMS OF CYPRUS

wound round the body like a ball of thread. Silk is the most beautiful of textile materials. As obtained from the silkworm it is a finished thread and no spinning is required.



LIFE STORY OF THE
SILKWORM

4. Canning and cold storage.—Canning is a method of preserving foods in sealed tins. Certain foods, such as sardines, are merely preserved in oil, the tins being sealed as soon as they are filled with oil. Fruit must be properly heated before being sealed, as this kills the germs which cause it to go bad. After heating and expulsion of air, the tins are sealed. Cold storage is a method of preserving perishable goods by keeping them at a low temperature.

5. Illustrations.—Point out to the children the strong lights and dark shadows in the picture of "Cyprus in Summer," thus laying emphasis on the bright summer

sunshine and clear skies of lands that have winter rain.

6. Blackboard summary.—Let the children assist in making sentences for a blackboard summary, which may be arranged as follows—

Cyprus is a warm, sunny island.
You would see locust beans growing there.
Ploughs are pulled by oxen.
Rich silks and velvets are made.
Upon the vines hang black and white grapes.
Sweet oranges come from Jaffa in Palestine.

7. Wine and Oil.—There is an interesting chapter with illustrations on these subjects in the history section, Lesson XII.

8. Memory work.—(a) Fruits that grow in warm lands with winter rain have tough skins to protect them from the sun. (b) Thousands of bags of locust beans are sent from Cyprus to other lands every year, as food for cattle. (c) Raisins, sultanas and currants are all dried grapes. (d) Grapes need months of hot sunshine to ripen them. (e) When it is summer time at Jaffa it is winter time at Cape Town. (f) When the orange crop at Jaffa has come to an end, the orange crop at Cape Town arrives from over the sea to take its place.

9. Exercises.—(a) In what ways do plants prepare for a hot, dry summer? (b) Why is there no butter in Cyprus in the summer time? (c) What do the people of Cyprus use instead of butter? (d) Tell all you know about a locust bean. (e) How are grapes made into wine? (f) How would you know a Jaffa orange in the greengrocer's shop? (g) What do you owe to warm lands with winter rain for your Christmas pudding? (h) Why does Cape Town enjoy summer when we are having winter? (i) Name some fruits which grow in warm lands with winter rain.

VI. HOT LANDS WITH SUMMER RAIN

PICTURE REFERENCE



SETTING OUT RICE PLANTS IN INDIA

(Class Picture No. 67 in the portfolio)

THE Class Pictures (Nos 67, 68 and 103) show rice planting, tea picking and piling teak. Rice is the staple food of the people of India. In the first picture peasants are setting out the young plants. The people are dark-skinned and wear special head-dresses and cotton clothing in the damp heat. They paddle in the muddy

water, for rice plants will grow only when the roots are flooded. Notice the huge incurving horns of the water buffalo ploughing.

The tea picking is going on in dazzling sunshine. The bushes are planted on the hillsides, and conveniently placed among the plantations is a tea factory with modern equipment for drying and rolling the leaves



TEA PICKING IN CEYLON
(Class Picture No. 68 in the portfolio)

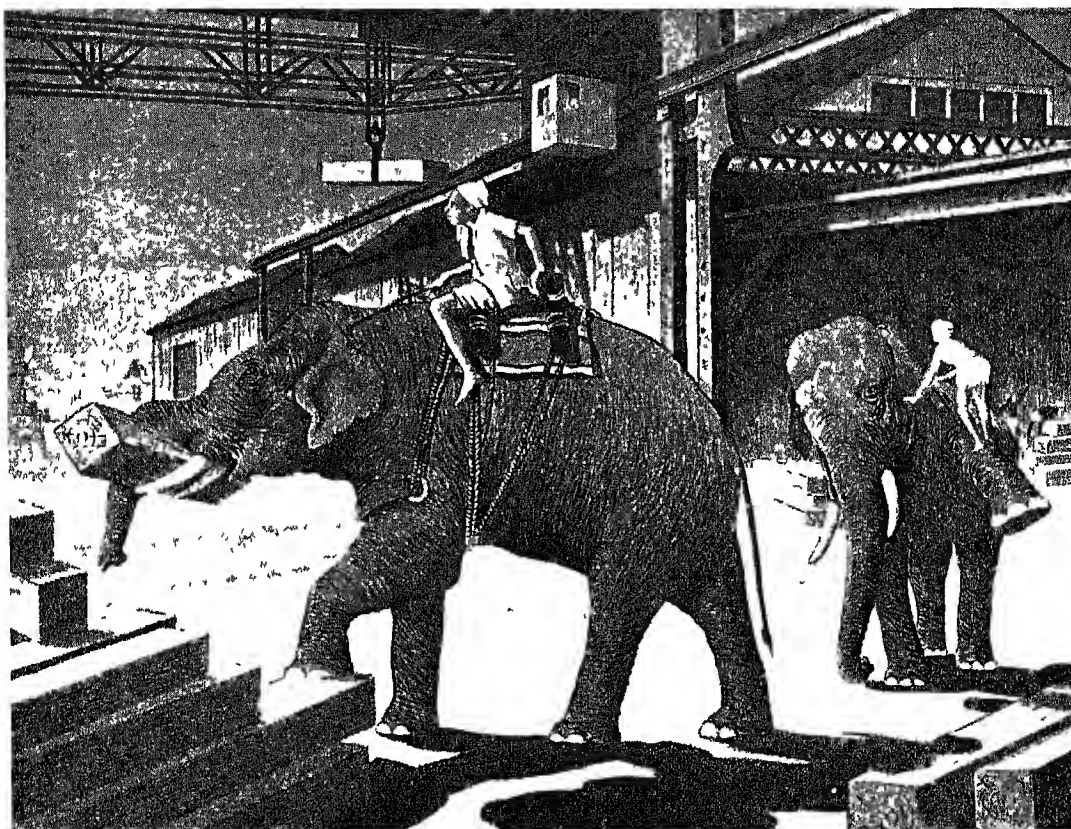
An ox-wagon, hooded to shade the delicate leaves, carries the baskets to the factories, whilst a lorry conveys chests of prepared tea to the seaport.

The third picture shows an elephant piling heavy logs in a timber yard and a *mahout* on his back guides him in his work. The elephant lifts a log in his tusks and uses his trunk to guide and balance it. Another one is helping his master to mount his back.

INTRODUCTION

We have dealt, so far, with areas of the world inhabited mainly by white people, but we have now to study an important

region where the climate is hot and wet, and unsuited on the whole for white occupation. India is a typical land where out of a total population of about 350 million only a few thousands are white. In the cool parts of the world, coastal districts usually experience a wind blowing from sea to land during the day and a wind blowing from land to sea during the night. This reversal of the wind direction is brought about by the rapid cooling of the land after the sun has set, and the rapid warming after the sun has risen. The wind blows from cooler to warmer areas, and thus the sea breeze blows by day and the land breeze by night.



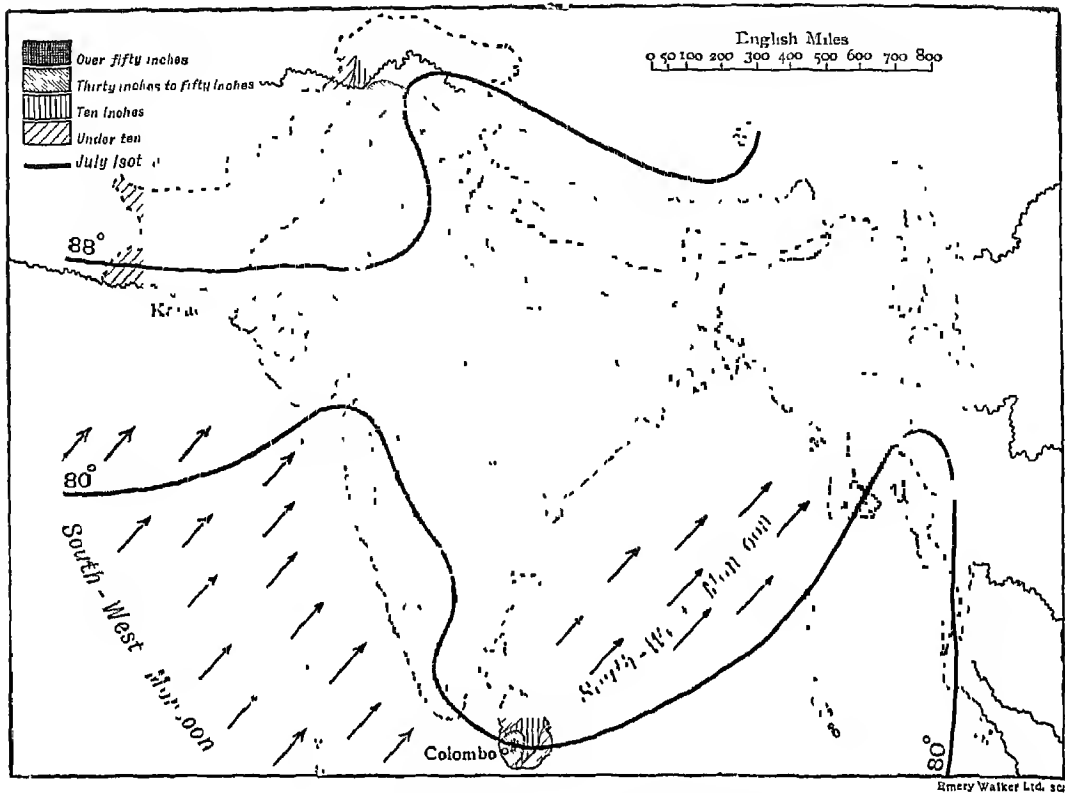
ELEPHANTS PILING TEAK IN BURMA

(Class Picture No 103 in the portfolio)

The monsoonal, or seasonal, winds of India closely resemble these land and sea breezes. India becomes intensely heated during the hot season of the year, and an inflowing wind is brought about which persists during the summer months. Later, when the land cools down and the sea becomes relatively warmer than the land, the wind is reversed and blows from India to the Indian Ocean. The inflowing wind from the ocean, the south-west monsoon, is heavily charged with vapour, and where it is cooled by contact with high mountains tremendous rainfall occurs. The outflowing wind, the north-east monsoon, contains

very little vapour, since it is passing from land to sea, and during the cool season when it is blowing, the greater part of India is very dry. Some parts of this vast country are classed as "desert."

These climatic conditions influence both the character of the natural vegetation and the cultivated plants. Hot monsoon forest areas are found, and, in these, teak is the most valuable timber tree. The elephant is an important beast of burden in the lumbering operations in the forest. In the lowland plains, and where trees have been cleared, a very wide range of cultivated products can be grown. Among these are

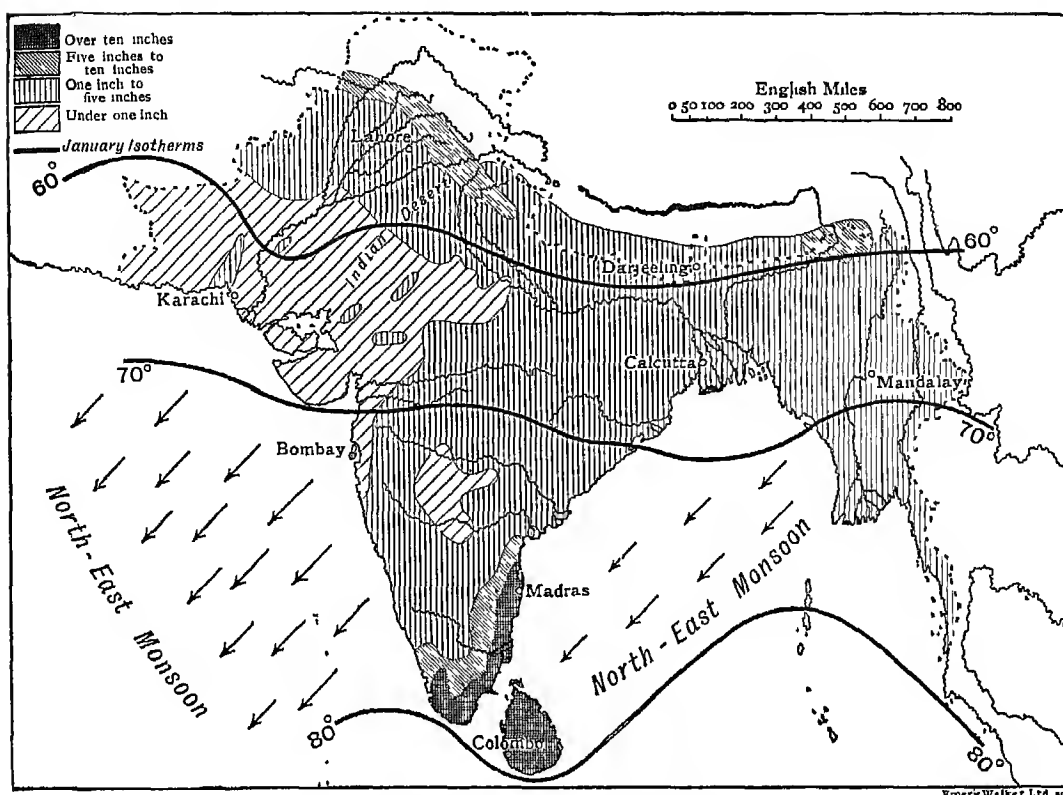


SOUTH-WEST MONSOON—INDIA, BURMA AND CEYLON

rice, jute, indigo, sugar, millet, cotton, tea and coffee. In the cooler season of the year, when the temperatures are a little higher than the English summer, wheat is grown. Millions of coloured people, native to India and Burma, are peasant farmers who live in villages. In the wettest parts of their countries they grow rice to provide themselves with their chief food. South-east Asia has had centuries of experience in rice cultivation and since the earliest days, it has been a staple industry. Rice is grown for home consumption, but the vast rice-growing areas of India and Burma yield a surplus in excess of the people's requirements. To-day more rice is exported from the two countries than from any other region in the world. Most of the grain comes from lower Burma and Bengal. (Rangoon and Patna

rice are well-known varieties in all parts of the world.) Climate and soil are ideally suited to its cultivation. The tropical summer rains flood the paddy fields and the crop is ripened and dried by the warm Indian sun.

Swamp rice, the most important commercial variety, requires very wet hot regions. The seed is sown in flooded ground with a depth of about 6 in. of water, and when the shoots are a few inches high they are planted in paddy fields. Each field is surrounded by a bank in order that it may be kept covered with water during the early stages of the growth of the plants. It is only during the ripening period that the fields are drained. The rice plants mature quickly, and in the most favoured areas three distinct crops can be harvested during



NORTH-EAST MONSOON—INDIA, BURMA AND CEYLON

the hot wet season of the year. The plants give a prolific yield, and the harvest is usually very great.

Tea, like rice, requires a heavy rainfall and a high temperature, but, unlike rice, it requires a well-drained soil. Water must not stay at its roots, hence plains near rivers liable to flood are unsuited to its cultivation. Tea flourishes on the lower portions of wet mountain slopes, and is an important crop in Assam, the south of India and Ceylon. Some 82 per cent of the area cultivated is located in Assam and Darjeeling and its neighbourhood.

The rainfall of Assam is at least three times the Indian average and in some localities amounts to 30 ft or even 40 ft a year. Over a foot of rain may fall in the course of a night. The hillslopes are therefore

well-watered during the hot summer months. The tea plant grows wild on the eastern hills of the province, often attaining the height of a moderately sized tree. The cultivation of tea involves much labour in pruning and leaf picking, and it is necessary that labour should be plentiful. Peasants from northern and central India are engaged to do the work. Over 4,300 tea plantations give work to nearly a million of these people. The tea of commerce is the dried leaves of the tea shrubs. The earliest crop is the best, since the young leaves supply the choicest tea.

The bulk of the tea produced in India is exported to foreign countries and the trade brings to India about £23,000,000 a year. Indian tea goes to over fifty countries scattered all over the globe. After picking, the

leaves are speedily removed to the factory, where the first process is to wither them in trays, which are generally stacked in lofts through which hot air from drying-machines below is passed. Next come numerous rollings, which liberate the juices for fermentation and give the leaves the characteristic twist. From the rollers the leaves pass into the humid air of the fermenting rooms, where they attain a copper red colour. Finally comes firing, a tricky operation, in which the trays pass on an endless band through a vast drier heated to about 150°F . It now remains for the tea to be sifted and graded. The sifting is done by women who

see that all inferior leaves are removed. When this has been done, it is passed through sieves with meshes of various dimensions, which separate the leaves according to size and shape, and thus grade the different qualities in readiness for packing in the well-known plywood chests.

Over 70 per cent of the enormous population of India are directly dependent upon agricultural pursuits for their livelihood. There are few large towns in India but there is an enormous number of villages in which the peasant farmers live. Their methods of cultivation are not very scientific and many of their implements are old-fashioned. In this fertile



CHURNING BUTTER—INDIAN VILLAGE LIFE

[Courtesy Indian Railways.]

country the farmer is everywhere a poor man. Owing to the great heat little clothing is worn. The dwelling places are constructed with wood or mud walls and have thatched roofs of leaves and grass. The houses are one-storeyed dwellings with an average of two rooms. The villages vary considerably in different parts. Sometimes they are packed closely together, but often there is a single village site around which the houses are collected. In swampy districts the houses line the high banks of rivers. Usually a bamboo fence or a thorny cane hedge surrounds the courtyard of each house as a precaution against wandering animals. The elephant, rhinoceros, and wild buffalo frequent the areas where dense jungles are found. Tigers sometimes raid village herds in places,

while leopards, bears, wolves, the mongoose, mice and rats are numerous.

Domesticated animals are buffaloes and oxen, both being used for draught purposes. Cattle are held in great veneration and the flesh is never eaten. Wild birds are exceedingly numerous.

It is important to notice that when the dry monsoon wind is blowing the temperature is still fairly high and the land is able to produce crops by the aid of irrigation. In many areas tanks have been constructed to store the heavy rain of the wet season. The water is led to the fields by dykes and ditches. Some of the rivers have been harnessed, in the latter part of their courses, by great masonry dams, and their waters distributed into a network of irrigation channels.



WEAVERS AND THEIR QUARTERS, OUTSIDE AGRA

[Courtesy India House]

Mention must also be made of the wonderful skill of many of the peasants of the hot summer rain lands India is the land of monumental and magnificent temples These are found in every city of the country They are decorated in a lavish and wonderful fashion which speaks well of the artistry and skill of the people The fine muslins, silks, carvings, filigree work and pottery are further examples of their beautiful handwork

CHILDREN'S STORY

RICE CULTIVATION

We come now, in our lessons, to India and Burma, both very hot lands which have rain in the summer time The people of these lands are dark-eyed, graceful and slender They wear thin, cotton clothing The men work on the land, and almost all of them have small farms, where they grow food for their families What food do you think they grow? Chiefly one kind, which supplies almost all their needs. That food is rice They eat it at every meal, just as we eat bread They eat their meat with

rice, their vegetables and fish with rice, and when they have no meat or fish, they eat rice cooked alone

Now rice is a very curious plant to grow It likes to stand in cool water, with a burning sky above it That is why it flourishes in lands with summer rain Rice is called "paddy" while it is growing. At first, it is a tiny seed When the rain comes, at the beginning of the summer, all the paddy fields are ploughed Oxen, or sometimes water buffaloes, drag the ploughs The patient animals walk up and down the fields all day long, in deep mud and water often up to their knees The men or boys guiding the ploughs sometimes bind straw or cotton rags round their legs, so that they shall not be bitten by insects in the mud In the warmest corners of the ploughed fields the tiny rice seeds are sown under six inches of water They soon shoot up, and when the shoots are four or five inches high, they are planted out in rows in the paddy fields This you see being done in the picture If the rain should not be heavy enough to keep the paddy fields flooded, the farmers run in water from the nearest river, and bank up the fields so that no

water can escape. The whole crop would be ruined if a field became dry

Gradually the green shoots grow taller, and the paddy fields appear to be covered with waving grass Towards the end of the summer, the rain grows less, and finally stops. The paddy turns yellow and ripens, and the fields are drained dry. Children are now kept busy scaring away the birds which try to steal the rice grains At last the



INDIAN FARMER GOING TO THE PADDY FIELD WITH HIS
PLOUGH AND CATTLE

crop is ready for harvesting. Men go into the fields of paddy and cut it all down. Then they hang it out on fences to dry. There is still more work to do before the grains are all sifted out and shiny as we buy them for our puddings. When the paddy is gathered, the rice grains are hidden in husks, just as grains of wheat are hidden in the ears. To sift the rice grains from the husks, men drag the dry plants through iron teeth set in tree trunks. Then they beat the rice, and throw it against the wind in shovelfuls. The wind blows away the husks, leaving the grains behind in a heap on the ground. In the end, the grains are carried away in buffalo wagons to the rice mills, where they are scraped and polished white.

Most of the rice grown is eaten by the people who grow it, but some of the hot lands with summer rain in the Commonwealth, grow more than the people need for themselves. Then the rice is packed in large bags, and sent by ship to London and other places. From which lands does it come? Turn the globe round and look for a land called India. India is a part of the Commonwealth which has heavy summer rain. Is it very far away from the equator? No, that is why it is a hot land. It has long rivers, and the paddy fields lie on either side of the rivers, where the land is flat and marshy, and holds water on it for months at a time. Some of the best rice that you can buy comes from India, and from a country adjoining it, called Burma, which was once a part of our Empire.

TEA PLANTATIONS

We know now the chief *food* of the people living in hot lands with summer rain. Have they also any special *drink*? Yes. These are the countries in which the tea plant grows. The tea plant, like the rice plant, needs both rain and sun, but it does not care to stand in water. Its roots must be well drained. Consequently it is grown on sunny hillsides so that the rain water will moisten its roots and then run away, and

the hot sun will hasten its growth. Many hillsides in India are used for tea plantations, and sometimes the bushes are found growing wild.

Tea plants are grown from seeds, and are not ready for picking for three years. They are neatly planted in rows and cut down to a height of about four feet, so that the leaves can all be reached easily. Only the young shoots are picked for tea making, and these are nipped off by hand. In a large tea estate, picking goes on all the year round. The land is divided into fields, and the plants are at different stages in each field. Some fields will be in flower, snow-white and delicately scented, others will be shooting or producing fruit. There is always work to be done. When a field of plants has just been picked and needs a rest so that new shoots can grow, then is the time for weeding, or pruning. The pickers on a tea plantation are mostly women and older children. Their fingers are more nimbler than men's and the tender shoots need handling with dainty care. You can see them in the picture busily filling their baskets. When they have filled their baskets, they take them to the factory to be weighed, and are paid a certain amount of money for every pound of tea leaves that they have picked.

Inside the factory, the leaves are spread on trays and left to wither for a day and a night. They are next put into a rolling machine, and all the juice is squeezed out of them. After that they are spread on trays to decay or ferment, and they give off a lovely scent. Finally, they are rolled again, and dried by hot air, which turns them black. The large leaves are sifted from the small ones, and all are packed in separate cases lined with lead to keep them air-tight. These tea chests come over the sea to England. Mother and father are very glad of their cup of tea at tea time. They can buy a pound of good tea for a little over three shillings, but before India had her great plantations a pound of tea in England cost fifteen shillings and more!

When tea was new and strange to English people, they did not know how to use it. The story is told of an old lady in the country who had a pound of tea sent to her for a present. She was told to pour boiling water on the leaves. So she put them into a jug and poured on the boiling water, for she thought that the tea leaves were vegetables and would be cooked by the water. Then she threw away the water, and spread the leaves on bread and butter. Ugh! how nasty they were! "I do not care for tea at all," said the old lady, and threw the leaves to her pig.

TEAK FORESTS

Where the land in these hot regions is not cleared for growing crops, large forests spring up with many strange trees in them. On the edges of the forests live wild animals, such as tigers, leopards, bears and wolves. These hunt the wild deer for their prey, but when they cannot find enough food in the forests they come out and prowl round the nearby villages. A great many more people live in villages than in towns, and their little houses have wooden or mud walls, and roofs thatched with leaves and grass. Generally there are only two rooms in a house. They are not very well protected against the wild animals. The men put bamboo fences around their gardens, or grow hedges of thorny cane. Sometimes a tiger will push through in the night, and make a raid on a poor man's stock. A very hungry tiger will carry off a child if it should find one. Wild elephants and buffaloes also live near the forests, and when these sally out in herds they will trample a whole village down to the ground.

Since these dangerous creatures make their homes on the forest rim, you will say, "Why not cut the forests down? Then the wild animals will go away or die." No, we cannot do without the forests, because of the wood that comes from them. In the depths of the forests grow noble trees called teak trees. They flourish, green and stately, during the

hot, wet summers, and drop their leaves during the dry season that follows. When a teak tree is fully grown the woodcutters take off a ring of bark from around the base of the trunk and so kill the tree. Then they leave it standing for two years before cutting it down. Consequently the wood is very hard, and will not split or warp when in the hands of the carpenter.

You can see an elephant in the picture piling up the logs of teak after they have been sawn and planed. The logs are worth a great deal of money, and are shipped to many lands. They are used for building houses, for furniture, for ships, railway sleepers, shop fronts, garden seats, and wherever wood is wanted to stand hard wear or bad weather. When a great many teak trees have been cut down from the forests, fresh shoots are planted, so that the supply of wood shall not fail. The people living in the hot lands with summer rain are very clever in carving the wood from their forests. They are always using their supple brown fingers to make beautiful work in gold and silver, in pottery, in embroidering silk and muslin, and in carving stone and wood, so that their splendid temples are the wonder of the world. Would you not love to pay them a visit?

Some time ago, a queer little story came from an Englishman who had been born in India, and had lived there many years. When he went over to England for a visit, he stayed at his brother's house, where he met a small niece and nephew. The children begged him to tell them a story about the land of summer rain. "All right, I will," said he. "An Englishman and his wife once lived in a house near one of the Indian forests. The Englishman was overseer of a body of woodcutters engaged in felling teak trees. He and his wife had a baby son, who was about six months old at the time of my story. During the dry season the nights were so hot that they sometimes slept on the verandah of the house. One day, when it was about four o'clock in the morning, the lady woke up, and turned to

glance through the dim light at the baby sleeping in his cot beside her. To her horror she saw that *the cot was empty*! Screaming with fear, she woke her husband and servants, and all dressed hurriedly. On the verandah steps they found large marks of paws. A tiger had come in the night and had carried away the baby. The Englishman seized his gun, and the whole party went out into the forest, though the poor mother had little hope of seeing her child again. The party followed whatever tracks seemed likely to be the tiger's, and wandered sadly on and on, peeping and peering in every direction.

"All at once one of the servant boys said 'Hush!' They stopped, and looked in the direction in which he was pointing, keeping as still as mice. Hidden away in a clump of bushes was a comfortable den of dried grass and leaves, and stretched lazily on these was the tiger, blinking his eyes and licking his paw like a great sleepy cat. Beside him lay his mate, a tigress, playing with two or three cubs, which rolled and gambolled over her. Lying between the tiger and tigress was the little white baby, seemingly unharmed, and kicking its feet in the air!

"Very, very quietly the Englishman lowered his gun and took careful aim. His shot shattered the tiger's head. Terrified at the noise, the tigress leapt up and ran away, followed by her cubs. The happy mother and father rushed to their baby, and with thankful hearts lifted him up out of danger. He had not a single scratch upon him, and did not seem frightened in the least. Full of joy, the little party returned home."

"Did the baby live to grow up and become a man?" asked the children, breathlessly.

"Oh yes, he is living now," said their uncle, "and you have seen him."

"Seen him? Why, where is he?" they cried.

"He is talking to you now," replied their uncle, laughing. "*I was that very baby!*"

TEACHING HINTS

1. Monsoon.—This is the name of a rain-bearing wind which blows over the Indian Ocean from May to September. It produces great storms in the Bay of Bengal, and sailors who trade with India have to vary the route they follow in accordance with the monsoon. The causes of the wind are explained in the "Introduction."

2. Rice.—Fifty or more varieties of rice are known. The flowers grow in a pointed plume. Each grain of rice stands on a separate stalk. The grains contain starch, but no gluten, so that rice flour cannot be used for bread making. Rice can be boiled or baked whole, broken or ground. In Japan, rice is made into an alcoholic drink called *saké*. In Burma, the husk, which forms one-fifth of the weight of the paddy crop, is used as fuel in furnaces.

3. Tea.—The name "tea" is given to the drink infused from tea leaves, and to similar decoctions, such as beef tea, cowslip tea and sage tea. In the "Children's Story" the making of black tea has been described. There is also green tea, which is unfermented, and more stimulating than black. In moderation, tea soothes the nerves. Excessive tea drinking, especially if the tea be kept long standing, produces nervous complaints, insomnia and indigestion. The teacher may here take the opportunity to impress on the children the correct method of making tea, since instruction in the preservation of health is never out of place.

- 1 The water should be freshly boiled
- 2 Heat the teapot.
- 3 Allow one teaspoonful for each person.
- 4 Pour on the boiling water, allowing about half a pint for a teaspoonful
- 5 Let the tea stand not more than three to five minutes

The Chinese were the first people who used tea as a drink.

4. Elephant.—This is the largest animal now existing. There are two kinds, Indian and African. The Indian elephant has smaller ears and tusks than the other. The diet of the elephant is exclusively vegetarian. Indian elephants rest heavy weights on their tusks or hold them in their teeth, using their trunks to keep them steady. The trunk is a delicate sense organ for smell and touch, and the animal takes great care of it. An elephant can uproot a tree by pressing its head on the tree trunk.

5. Buffaloes, oxen, cows.—Buffaloes can be distinguished from oxen by their horns, which are flattened at the base and triangular in section. Wild buffaloes of the jungle do great damage to crops. Domestic buffaloes pull the ploughs in the rice fields, as described in the "Children's Story."

6. Memory work.—(a) In hot lands with summer rain men are farmers. (b) They grow fields of rice. (c) Rice likes to stand in cool water beneath a burning sky. (d) Tea plants grow on sunny hillsides. (e) Tea is made only from the tender shoots of the tea plant. (f) Teak is a very hard wood. (g) Elephants, oxen and buffaloes work hard all day long.

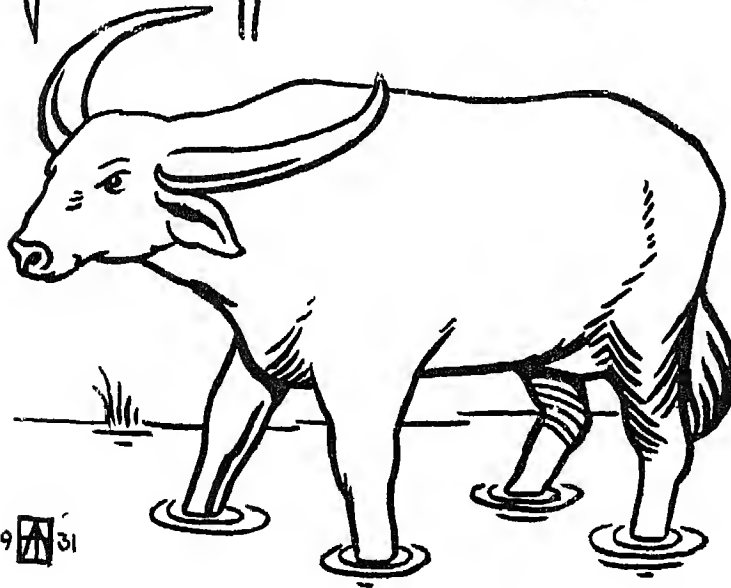
7. Exercises.—(a) What name are the rice fields called? (b) How must the rice be planted? (c) How is water prevented from running out of the fields? (d) Of what use is rice? (e) Why should the tea plants be set on hillsides? (f) Who are the chief pickers on a tea plantation? (g) What is done to the tea leaves after picking? (h) What are the names of the lands that grow tea? (i) What tree grows in the forests that have summer rain?



[By courtesy of Messrs Steel Brothers & Co., Ltd.]

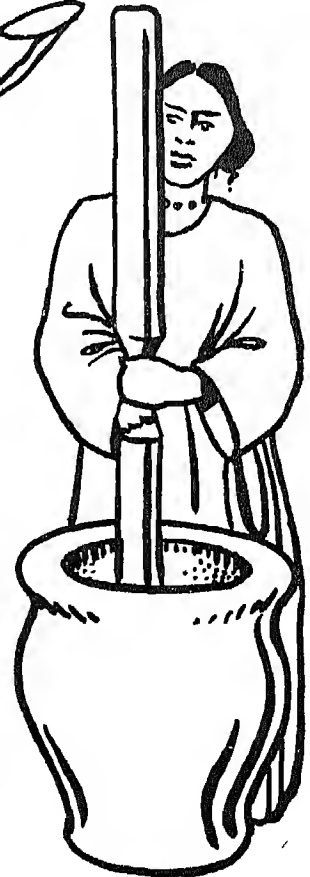
TEAK RAFTS ON THE IRRAWADDY AT PROME

SKETCHES FOR THE BLACKBOARD



19  31

RICE PLANT
WATER BUFFALO



TEA PLANT
INDIAN WOMAN POUNDING RICE

VII. HOT WET FORESTS

PICTURE REFERENCE



A COCOA ORCHARD IN WEST AFRICA
(Class Picture No. 69 in the portfolio)

THE Class Picture shows a party of dark-skinned people who live in the hot wet forest lands of Africa. They are working on a cocoa plantation. Look closely at the trees and you will see that they are quite different from coconut palms. Also, the fruits are pods, not nuts, and they grow from the trunks and branches. A large heap of pods has been cut from the trees

and round it are sitting women dressed in coloured cotton dresses and wearing knotted head-dresses. A man is breaking open the pods with a long knife called a cutlass, and the women are scooping out the cocoa seeds or beans. The huge leaves on which the women are sitting have come from banana plants. An important thing to notice is that there are no animals to carry the heavy loads.

INTRODUCTION

All lowland areas in a belt stretching about 10° on each side of the equator have a high temperature throughout the year, and a heavy rainfall which is fairly evenly distributed during the year. The belt includes the regions of the Amazon in South America, the Congo and the Guinea coastlands in Africa, and the island region lying between Asia and Australia. Rather a small part of the British Empire is included in this region of high temperature and heavy rainfall, but we have British Guiana, the Gold Coast and Ashanti, Nigeria, Uganda, Kenya Colony, Malaya, British North Borneo and British New Guinea, either wholly or partly in it.

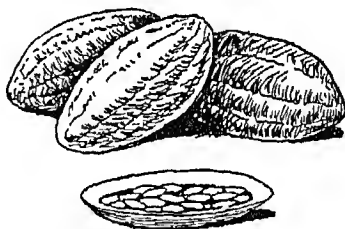
The absence of a cool season and the abundant supply of rain throughout the year cause vegetation to grow profusely, and vast forests occur. These forests are a decided contrast to those of cool lands. Near the equator the trees are mainly giants, and grow very close together. The branches intertwine overhead, forming a roof through which the rays of the sun can scarcely penetrate. Creepers, often a foot or more in width, twine themselves about the trunks and join tree to tree. In the gloom the undergrowth is scanty, but where daylight breaks through, the forest floor becomes a vast jungle, the home of myriads of insects and reptiles, deadly foes to man. The only pathways through these forests are the water routes formed by the rivers, and these routes are full of difficulties and dangers to navigation. Under such conditions the tropical forests are almost uninhabited regions of the world.

The trees of the tropical forests offer many valuable products. Some are prized for the value of their timber. Mahogany, rosewood and ebony are well known cabinet woods, and are used in the manufacture of high-class furniture. *Lignum-vitæ* is noted for its hardness, and civilised man has found many uses for it. Other trees are valued for their saps. The rubber tree has become of

very great importance during recent years. From some of the trees important medicines, such as quinine, cocaine, castor-oil and ipecacuanha are obtained, while from others dyeing material is extracted.

The unhealthy character of the tropical forest is a severe handicap to man in his efforts to extract the wealth. Lumbering is an arduous occupation owing to the difficulty of transporting the huge logs.

At first, the produce of these forests was obtained only by forced labour, but better conditions have gradually been established. Man is overcoming the terrible diseases of the tropics, and the work is now less deadly. The most wonderful change, however, is that some of the products are being cultivated, and man is becoming less dependent upon the virgin forest.



COCOA PODS AND BEANS

In the Gold Coast Colony the forest trees have been felled, and their stumps burned. Plantations of cocoa trees are being grown in the clearings thus made. The damp, hot climate suits the trees admirably. They are raised from seed, and the seedlings transplanted three months after sowing, when they are set out about fifteen feet apart. The young plants must be protected from wind and from the rays of the sun. When in bearing, each cocoa plant yields from one to ten pounds of dry beans annually. The cocoa industry of the Gold Coast is now a large and flourishing concern.

In the comparatively small region of Malaya and the islands of the area between Asia and Australasia the natural jungle has, to a large extent, been wiped out and plantation work now prevails. The climate still,

naturally, remains hot and wet throughout the year, but the opening up of the islands to the sea breezes, and the draining of swamps, has made them more healthy areas.

Plantation work for the cultivation of rubber trees has made remarkable progress. In Malaya the birth of the plantation rubber industry is one of the most striking romances of agricultural enterprise. In the year 1876 a supply of seeds was obtained from the area of the Amazon forest and about twenty plants were established. In 1900 world trade in Eastern rubber amounted to only four tons, but now the annual yield in Malaya is nearly 500,000 tons. Plantations have also been established in the hot lands of Ceylon, India, North Borneo and Sarawak, and these regions, together with the Dutch East Indies, now produce about 95 per cent of the world's supply of rubber. Malaya produces about half the world's supply.

Rubber will grow in any district in Malaya. It requires an equable tropical temperature and a well distributed and high rainfall. Most of the areas at present under rubber were previously dense jungle which was cleared by felling trees and burning

From the time of planting until the trees come into bearing there is little cultivation except eradicating weeds, draining the land where necessary, and preventing epidemic attacks of disease.

Rubber comes into bearing in from five to six years after planting. By that time tapping commences and the trees have a girth of about three feet at the base. The latex, which is somewhat like milk in appearance and consistency, is taken direct to the factory when collected from the trees. There, after being placed in tanks or pans, it is coagulated by the addition of a small quantity of acetic acid. The thick material is put through rollers, washed, and either smoke-dried or rolled into thin long strips (*crêpe*) and air-dried.

The British possession of Sarawak has a large production of plantation rubber, and also exports a considerable amount of gutta-percha from the virgin jungle of the region. The collection of the rubber from the jungle is an occupation well suited to the Dyak inhabitants. It requires little capital, and the collectors may travel long distances and be away for months at a

time. The journey is made by boat to the region where the trees have been located. The tapping is done by a gouge tapping knife, the bark is cut on the herring-bone system, and the latex is collected in bamboo cups. It is then conveyed to the coagulating sheds, usually built at a convenient position on the river bank, where the workers live and sleep. Having accumulated a sufficient stock the collectors take it to the nearest bazaar for sale to the merchants.



COLLECTING RUBBER LATEX

Of all the jungle plants the rattan and bamboo are the most valuable to the people. The houses are constructed with bamboos, and the baskets made with bamboo by the Dyaks are the best in the world. Rattan furniture is made and is found in every house, and with rattans the people also make beautiful mats. The finer sorts of rattans take the place of ropes and string

British North Borneo now has a very large export of rubber. Less than twenty years ago the production was small and it was entirely from jungle trees and vines. Plants raised at Kew from Brazilian seeds were introduced in 1882, and since then the plantation industry has expanded rapidly. North Borneo has now definitely taken its place as one of the few tropical countries where plantation rubber is a great success. Gutta-percha, rattans and bamboos are also obtained from North Borneo.

The fauna of Borneo is prolific. Elephants are found in the south-east part of the territory, and the small type of rhinoceros lives in the dense jungle of the interior. Wild pigs are exceedingly common, and unless guarded against do considerable damage to plantations and crops. They attain an unusually large size, and are much hunted with spear and dog by the people.

The immense ape called the "orang-utan" is found in the forest, and the tiger-like clouded leopard, famed for its beautiful coat, preys upon the gorgeous wild peacocks. There are numerous small animals in the forest. Monkeys are seen everywhere, and two species of the lemur are found. Armadillos, porcupines, otters, stoats, flying-foxes and bats are numerous. The crocodile is the most dangerous of the reptiles, and is found

in nearly all the rivers. It attains an enormous size. The people have an ingenious method of catching crocodiles. They use a baited stick which twists in the throat. Snakes are abundant, some harmless and some poisonous. Large pythons are found in the forest and some are said to reach a length of thirty feet. Borneo is the home of glorious songsters as well as of birds of brilliant plumage.

Little has been said of the two great areas of tropical forest that almost fill the Amazon and Congo basins, but reference might be made to a curious race of people found in the forest of Africa. The Pygmies of that area are dwarfs who are mainly a hunting people. The men use blow-pipes and poisoned arrows as weapons, or catch wart-hogs and other animals in pitfall traps, while the women supplement the food supplies



STRAIGHTENING RATTANS



OLD METHOD OF TRANSPORTING COCOA

[Courtesy Cadbury Brothers, Ltd]

by cultivating a little manioc and gathering wild fruits, insects and honey. Villages of oval huts made of grasses and leaves are to be met with in clearings, where the little people like to stay aloof from strangers.

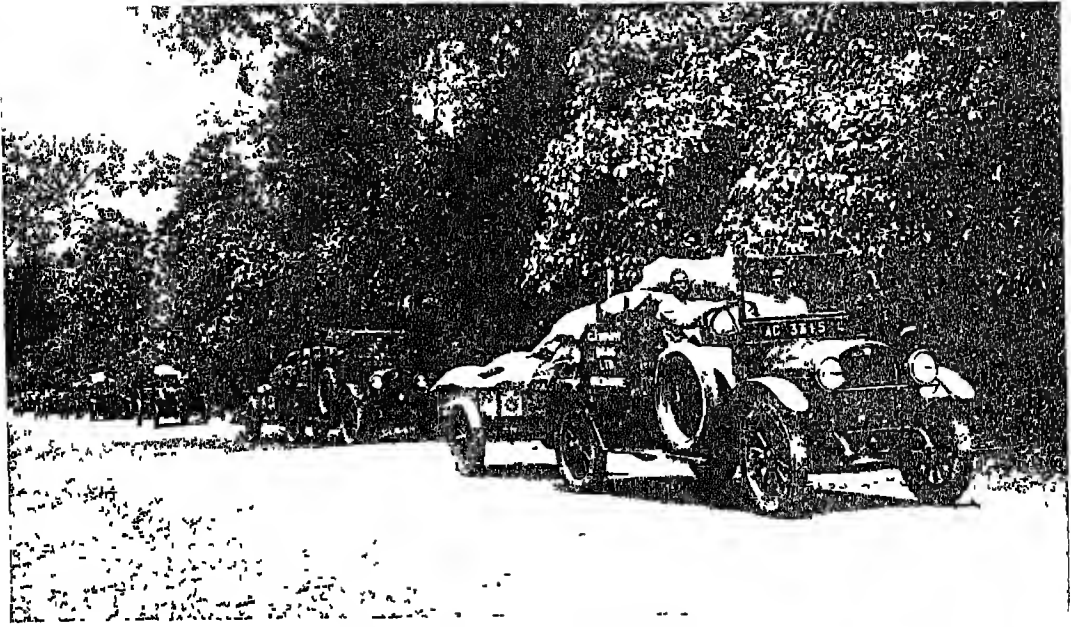
CHILDREN'S STORY

COCOA AND CHOCOLATE

The hot wet forest lands of our Empire all lie very close to the equator, and therefore they have summer time all the year round. Rain falls, too, all the year round. It rains heavily for a while almost every day, and most things always seem to be either dripping or damp. Trees love the rain and sun, and so vast forests spring up,

full of giant trees and ferns and creeping plants, which crowd upon each other, and struggle for a share of the sunlight. Searching on the edges of these forests, men have discovered trees of great value to them. Some of the wood from the trees is dark red in colour, or black, and can be made up into expensive furniture. Other trees contain medicine in their trunks or leaves. There are still others which supply us with useful materials for our everyday life, and one very important tree gives us food and drink! How strange, you will say! Do we really get food and drink from a tree in the hot wet forests? Yes, indeed we do, and here is its story.

This wonderful tree is called the cacao tree, and from it we obtain chocolate and cocoa. Because cocoa comes from it, it is



NEW METHOD OF TRANSPORTING COCOA

[Courtesy Cadbury Brothers, Ltd]

sometimes called the cocoa tree, and you must be careful not to confuse it with the coconut palm. There is an "a" in the spelling of "cocoa", but not in "coconut". The cocoa tree is not a palm, and it bears pods, not nuts. Look at the trees in the picture. The leaves are oblong, smooth and pointed. They are bright green in colour, and sometimes grow eighteen inches long. Tiny pink and yellow flowers spring in clusters from the trunk and main branches of each tree, and these give place to fruits like small cucumbers. They look very curious hanging away from the leaves, instead of amongst them, as apples and pears do. In three or four months, the little fruits swell into large pods, and their green colour changes to red or yellow. The rain makes them grow, and the sun ripens them. They cannot stand much wind, and drop off in large numbers, or shrivel up, when a gale arises. They often grow a foot long.

At length they are ready to be picked. Those fruits within reach are either picked

by hand or cut through their stalks with cutlasses. A cutlass is a very large knife with a broad blade which is curved at the point. (See blackboard illustration.) The pods growing out of reach are cut off by men using a long bamboo cane with a knife fastened to the top. They work very carefully, so as not to injure any clusters of flowers growing by the pods, as these will produce the next crop of fruit. Women and children gather up the pods as they fall, and heap them at the foot of the trees. Presently, they pile the pods in baskets, and carry them off on their heads to an open space between the trees. The women walk very gracefully, and their blue and brown clothes floating out among the green leaves and golden fruit make a picture full of bright colour.

When a huge pile is heaped up, the workers gather round to break open the pods. Men slash them open with cutlasses, and scoop out the insides with the curved points. Then they throw the tough rinds on one

side, and the contents of the pods in a heap in front of them. The insides of the pods are sticky masses of white pulp, in which are arranged about forty beans in rows. The beans are either a pale yellow or delicate purple colour, but at this stage they all look white, because they are wrapped in pulpy white jackets. Women take up the sticky masses in their hands, and break them into separate beans. They heap these upon plantain leaves. When the work is finished, they place more plantain leaves over each pile, and the beans are then left to sweat or ferment.

During the sweating, which takes about six days, the pulp round the beans becomes liquid and runs away, and the colour of the beans deepens to a medium brown, or in some cases to a dark chocolate hue. The beans have to be turned over every day while they are sweating, or they will not ferment properly. The next work is to dry the beans. They are either spread out in the sun to dry, or taken to hothouses where they are fanned with hot air from machines. Now they are ready for market. They are packed in bags, and sold, to be shipped to many different countries.

Not many beans are gathered from wild trees, for the coloured people of the hot wet forest lands have learnt to grow them in plantations. They root out and burn patches of forest trees and plant little cocoa trees in regular rows. These cultivated trees are reared from seeds and planted out when about a foot high. They have to be shaded from the hot sun when they are young, so banana trees or plantains are set by them, and cut down afterwards when the cocoa trees are tall and strong. Dry winds and hot sun kill young cocoa trees. The plantations are kept carefully weeded and free from deadly insects, and from the trees thus grown very fine beans are obtained. Merchants prefer the beans from plantations to those from the wild forest. Great firms which make large supplies of chocolate and cocoa always buy their beans straight from the plantations.

When the bags of cocoa beans arrive from over the sea, their contents have still to be made into chocolate or cocoa. They are placed in a wonderful machine which cleans them and sorts them into sizes. After that, they are roasted for an hour. Lastly, the beans are put through a machine which splits off their shells and crushes them into small pieces called nibs. The nibs are carried away for grinding. They are showered into a mill which turns them to powder, but when they leave the mill they run out as a streaming liquid. The grinding of the millstones warms the nibs and melts the fat in them. This fat is called cocoa butter. The thick liquid flows into cloths through which the cocoa butter filters and a brown powder is left behind. At last we have our cocoa! We mix it with hot milk or water and sweeten it with sugar, and so obtain a delicious, nourishing drink.

The cocoa butter is used for soap, face cream and for making into scent. Some of it is run into moulds and used in the making of chocolate. When used for chocolate, the cocoa butter is not filtered away from the powder. They are left together, making a rich liquid which has still more cocoa butter added to it, also sugar, and some kind of flavouring, and then is run into moulds of many shapes, where it cools and hardens into chocolate. Thus we get both food and drink from the cacao tree, and what delicious food and drink! Remember this story, and tell it to your mother when you offer her a piece of your next Easter egg.

RUBBER PLANTATIONS

It is wonderful to think that trees growing in our Empire give us food and drink. What would you say of a tree that provides us with clothing? In those mighty wet forests near the equator such a tree does actually grow. In the rain and sun it springs up healthy and strong, and without it we could have no mackintoshes to protect us from rain. It is the rubber tree. In some lands it grows wild, but in our Empire it

is cultivated in large plantations. Great parts of the hot, wet forests have been cleared by cutting down and burning the trees, and digging out every root. In these clearings, either seeds or young plants of the rubber tree are set at regular distances, so that each can receive enough air and sunlight. In about five years after planting, the trees begin to produce rubber.

As it comes from the tree, rubber is a milky juice. To obtain this juice, the tree has to be "tapped," or cut with a knife through the bark. At one time, the men who collected the juice made a great many V-shaped cuts all over the trunk, thinking that more cuts would give them more juice. It has been found, however, that the same quantity of juice can be taken from one long cut as from many small ones, and the one cut in the bark heals up much more quickly afterwards. So nowadays the rubber trees are tapped by cutting one long channel all down the tree to the ground, with four or five short branches running out of it. A cup is placed under the cut in the tree.

The tapping is done early in the morning, and in the evening the juice in the cups is poured into pails, and carried off to the factory. All the buckets of juice are emptied into a tank, and a little acid added which makes the juice harden. Soon the rubber looks like a great white cheese. It is cut into lumps, washed, and put through mulls, which roll it into sheets. Finally the sheets of rubber are hung up in sheds to dry. Sometimes they are smoked, to dry them more thoroughly. When perfectly dry, the sheets of rubber are packed in chests which hold about a hundred pounds each, and these chests are carried down to ships and taken all over the world. What a number of useful purposes rubber serves! Besides mackintoshes, we have rubber soles and heels on our boots, rubber hot water bags, rubber balls, gloves, cushions, sponges, aprons and hose pipes. Can you think of anything else made of rubber?

The great success of the cocoa and rubber plantations in the hot wet forests is the

more wonderful when we know in what dangerous parts of the world they are. The damp and heat breed swarms of insects, and give rise to fever germs in the air. Crocodiles infest the rivers. Deadly snakes lurk among the ferns and grasses. Wild pigs, elephants, large apes and monkeys, leopards and bats abound. Yet in spite of perils, man carries on his work there, and makes use of all the good gifts of Nature he can find, for his own well-being, and for the good of the whole world.

Now look at the globe and find out where the cocoa and rubber trees grow. Run your finger along the west coast of Central Africa, called the Gold Coast. That is an easy name to remember. Now move your finger along eastwards over the sea to Australia, and look at the islands to the north of Australia. Notice that the equator runs through them. Try to find Malaya, Borneo and New Guinea. Parts of these lands are in the British Empire, and they are the hot wet forest regions.

TEACHING HINTS

1. Forest trees.—In the hot wet forest regions, the lengths of days and nights are fairly equal all the year, and summer and winter temperatures much alike. The rain also is distributed equally throughout the year. Consequently the vegetation is enormous. *Mahogany* is a beautiful hard red wood. *Rosewood* when cut yields a perfume like roses. *Lignum-vitæ* is of a blackish green colour, and is used for rollers, ships' blocks and woods for the game of bowls. *Ebony* is very hard and black. *Gutta-percha* sap is obtained from the tree when it is felled. It is a greyish, horny substance when hardened, and is used for electric cables. *Rattans* are spiny, climbing canes, used in the making of mats and baskets. *Ironwood* is a hard, heavy brown wood. *Camphor-wood* is brownish red, and scented like camphor. Camphor crystals and camphor oil are obtained from it. *Cinchona* trees yield quinine from their bark. Quinine

is the medicine used in the treatment of fevers. There are also many varieties of *palm trees*, among them the *date*, *oil*, *sago*, *coconut*, *wory-nut* and *betel-nut*. They usually have straight slender stems, bearing at the top a mass of feather-shaped leaves. Palm oil is obtained from the fruit of the oil palm, and sago from the pith of the sago palm.

2. Forest creatures.—For information on the orang-utan, the armadillo and other forest animals see the section on "General Knowledge" in Volume VI.

3. Plantains and banana trees.—These are really herbs, not trees. They grow to a height of twenty feet, but the true stem is very short, and what appears to be a trunk is formed of the bases of the enormous leaves. Each leaf is from eight to ten feet long and one foot wide, with an oblong blade. Thus the leaves are a shade for the cocoa trees planted by them. The banana is thought to have been cultivated from the plantain. It yields one huge cluster of luscious and sustaining fruit on each tree, weighing almost half a hundredweight.

4. Acid.—A little acetic acid is added to the rubber juice to hasten solidification. This acid is obtained from wood, and is also found in vinegar. When strong, it will blister the skin, and it is useful for removing warts and corns.

5. Chocolate and cocoa firms.—Children should be encouraged to find out the names of the great firms in their country, and where the factories are built. For handwork, artistic designs on bowls and pots can be made from coloured chocolate-papers stuck to the sides.

6. Dyaks.—These are some of the forest people of Borneo. They are great collectors of jungle produce, away from their villages months at a time, seeking the many products with which the jungle abounds. The Dyak

custom of head hunting, no longer practised, was founded on the same principle as that of scalp hunting among the North American Indians. A young man found it difficult to obtain a wife until he had at least one head to present.

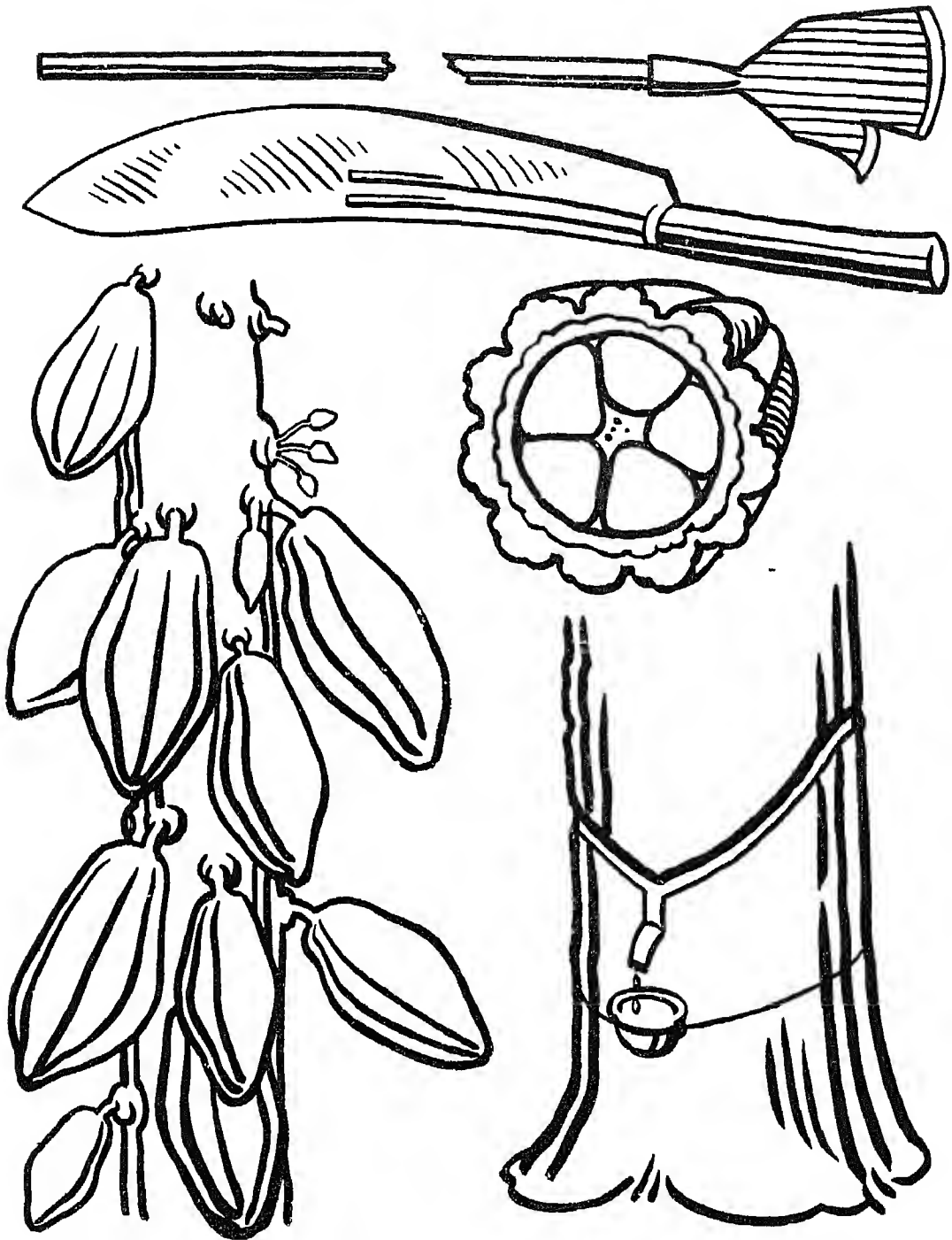
A Dyak village is a communal establishment. It does not consist of separate huts, but large halls on platforms, upon which the dwelling rooms abut. Wood is the material used for the buildings which are supported on poles sometimes over twenty feet above the ground. Dogs, birds, and monkeys mingle with the people on the platform and in the communal hall.

The Dyaks are skilled in the use of poison darts which they eject from a blow-pipe. The Borneo blowpipes are very skilfully made and used. They are seven or eight feet long, and the users show skill and accurate shooting up to a range of fifty to sixty yards.

7. Memory work.—(a) In the hot wet forests rain falls all the year round. (b) Young cocoa plants are protected from the sun by banana trees. (c) Cocoa pods grow out of the tree trunks. (d) Inside a pod are forty beans. (e) Cocoa and chocolate come from the cacao tree. (f) The rubber juice is collected in cups. (g) Hot wet forests are dangerous.

8. Exercises.—(a) Of what different uses are the trees in the hot wet forests? (b) How is the cacao tree different from the coconut palm? (c) What are the colours of cocoa pods? (d) Why must the pods be cut from the trees with care? (e) What is a cutlass? (f) What is done to the cocoa beans before they are shipped to other lands? (g) What do we call the fat in the cocoa bean? (h) What uses are made of the fat? (i) How does rubber come from the tree? (j) What creatures live in the hot wet forests? (k) Where on the globe would you look for the hot wet forest lands? (l) What is done to the juice taken from the rubber tree?

SKETCHES FOR THE BLACKBOARD



HARVESTING PICKER AND CUTLASS
COCOA PODS

SECTION OF COCOA POD
HOW RUBBER IS COLLECTED

VIII. HOT GRASSLANDS

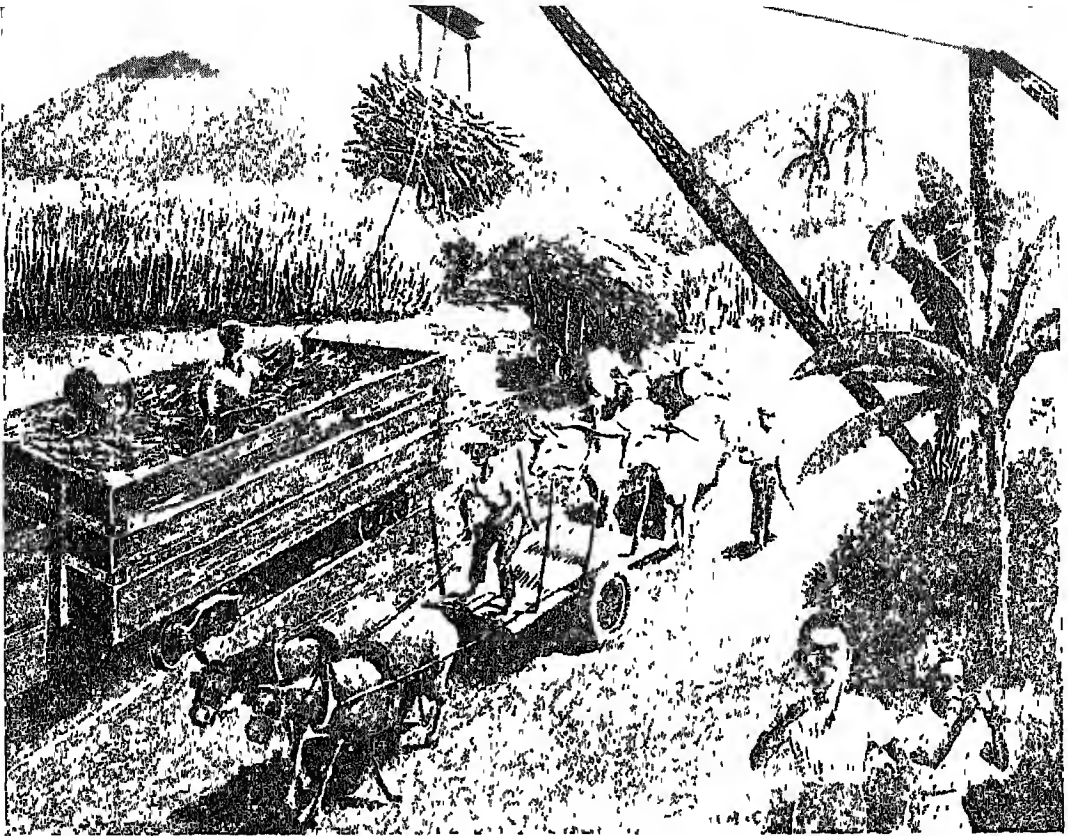
PICTURE REFERENCE



A SUDAN COTTON FIELD
(Class Picture No 94 in the portfolio)

THE Class Pictures (Nos 94 and 70 in the portfolio) show a Sudan cotton field and the loading of sugar-canes in Jamaica. The snowy-looking cotton field is a most attractive sight. Near the front of the picture the white patches are seen to be balls of fluffy lint or down, which is inside the bursting fruit of the cotton plant. The

dark-skinned Sudanese people put handfuls in their bags, and camels carry loads from the plantation to the collecting station across the canal. This part of the Sudan must be hot and dry for camels to be employed. That is why a canal had to be dug to bring water for the cotton plants. The tall date palms in the distance also grow in dry lands.



LOADING SUGAR-CANES IN JAMAICA

(Class Picture No 70 in the portfolio)

The animals in the second picture are mules and oxen, which are able to withstand tropical heat. You can tell by the number used which are the stronger. They are bringing loads of ripe sugar-canes from the plantation in the distance. The carts are made very lightly and have rubber tyres to make pulling easier on the muddy road. Notice how the bundles of canes are lifted from the carts and placed in a railway truck. The machine doing the work is called a crane and a man behind the bushes is attending to it. When the trucks are full they will be drawn by an engine to the sugar factory, where the sweet juice will be squeezed out of the canes. The children in the foreground

enjoy chewing a piece of cane immensely. They have just passed a banana plant growing by the roadside.

INTRODUCTION

The hot wet jungle is flanked by a region where the rain is received only during the hottest months of the year. Not only is the rain restricted to a part of the year but the quantity received is smaller than that of the forest belt. The change from one region to the other is gradual, and as one passes farther from the equator, so the wet period of the year becomes shorter and the amount of rain less. By gradual changes

the dense jungle gives place to grassland and then to the hot dry desert. Temperatures during the hottest months are higher than those at the equator, but there is a wider range of temperature throughout the year. There is also a gradual lengthening of the daylight period during the hottest months, with a consequent shortening of the day during the cooler period of the year.

At El Obeid, in the Anglo-Egyptian Sudan, there is a mean annual rainfall of about 14 in., but of this quantity only about half an inch falls in the six coolest months. Farther north, at Khartoum, the rainfall falls to 5 in., and less than half an inch falls during the cool season. Halfa, on the northern boundary of the Anglo-Egyptian Sudan, is a little cooler than Khartoum in the hottest part of the year, but it is practically rainless.

In the tropical grasslands trees are found only near watercourses, where the ground is moist enough for tree growth during the whole year. For this reason the grasslands in Africa are often referred to as "park lands."

The distribution of the tropical grasslands on the globe is simple to realise. They bound the Congo forest in the Sudan and Rhodesia. In South America, they are called savannahs, and lie on each side of the Amazon forest. In Australia they lie to the south of the forest which fringes the northern shore.

Tropical grass is better suited for cattle than for sheep, and cattle reared for beef are more important than dairy cattle. Irrigation is gradually transforming the tropical grasslands into areas of great production.

The possibilities of development of the park lands can be realised by a glance at the activities of the inhabitants of the Anglo-Egyptian Sudan. This region stretches from the southern boundary of Egypt to within 4° of the equator, and lies between the Red Sea and French Equatorial Africa. The Sudan is the land of the Blue and White Niles. Both these rivers in the Sudan are

over 1,000 miles in length, and form the river roads for both passengers and merchandise to the big game country and great forests of the south. Along their banks dwell many types of African peoples. The traveller on the river steamers will see some of the life of primitive Africa, native cities and villages, gaily clad women and tom-tom players.

From December to March the climate of the Northern Sudan is delightful. During these months the country is at its best and the social season at its height. Khartoum, the capital, is a city with a winter season. Near by stands Omdurman, one of the greatest native cities in all Africa. To the south of this town, between the Blue and White Niles, are the largest cotton fields of the Sudan. The success which has attended the cultivation of cotton is due to the development of the irrigation schemes in the country. The Sennar dam, completed in July 1925, has a length of one and three quarter miles, and it raises the level of the water of the river fifty feet to enable it to flow into the Gezira Canal. In addition it forms a reservoir extending fifty miles upstream and containing 140,000 million gallons of water. From the dam the main irrigation canal runs for thirty-five miles parallel to the Blue Nile, and then divides into a system of smaller canals irrigating a large area in the plain between the Blue and White Niles. In 1927 the irrigated area was increased, and a much greater production of cotton was the result.

Millet, known as *dura*, is an important crop, and is the chief food crop of the country. It also provides the natural drink, *merissa*, a native form of beer. The crop is sown in July and is harvested in November. It is grown mainly as a rain crop in the wetter parts of the south, but is also grown under irrigation. Some is exported for poultry food.

In the drier parts of the north dates are produced in abundance. The bulk of the crop is consumed locally but several thousand tons are exported annually to Egypt.

The grasslands of the Sudan support large numbers of cattle, goats and camels. The Dinkas, a hardy race forming the largest proportion of the Bahr-el-Gazal population, possess immense herds of cattle, and neglect agriculture. In the southern parts of the Sudan there are very large numbers of cattle. There is, however, no trade in cattle from the richer southern area. The people can support themselves on the products of their own region, and are content with the maintenance of their own herds. The cattle trade of the northern area is remarkable. Animals are marched hundreds of miles to the railway at El Obeid, and are carried over 1,000 miles by rail to the Nile steamers at Halfa, or nearly as far to Port Sudan on the Red Sea route. The meat supply of Egypt is largely obtained from the Sudan, and camels are obtained as well as cattle. The eastern Sudan sends about 8,000 camels per annum to Egypt for slaughter for meat. They are marched down by desert routes and take a month or more on the journey.

The southern part of the Sudan is the "big game" country. In few countries can game hunters pursue their sport under more favourable conditions. Elephants, gazelles, lions, leopards, buffaloes and hippos are numerous. The Sudan remains one of the chief sources of supply of ivory.

As in all tropical countries, much is to be feared from the effects of insect bites. Practically all kinds of flying and crawling pests are found in the Sudan, especially ants, centipedes, scorpions, mosquitoes, sand flies and locusts. Locusts are particularly dreaded, since they do such tremendous damage to the vegetation. Real invasions

by locusts occur at intervals. Every effort is made by the use of poisoned bran and smoke fires to cope with the swarms, but they appear in such alarming numbers that considerable damage cannot be prevented. Near the Red Sea the camel fly is responsible for a high death-rate among camels. In the swampy districts of the south sleeping sickness is a terrible scourge, and the tsetse fly does great damage to domestic animals making human portage essential. The tsetse fly is a two-winged, brown and yellow fly, which with its wings closed has much the appearance of a common house fly. One species, of which there are about fifteen, by transmitting germs from animals to men causes sleeping sickness.



HUNTER'S CAMP IN THE "BIG GAME" COUNTRY—
AFRICA

CHILDREN'S STORY

COTTON

We have now come to the hot grasslands of our Empire. In these lands a season of summer rain is followed by a long spell of hot dry weather. The lands lie farther away from the equator than the hot wet forests, where, you remember, it rains all the year round. In the hot grasslands, rich grass grows in the season of summer rain, but when the dry weather comes the grass gradually becomes poor. As the ground grows drier and drier, the grass becomes short and scanty. The rivers are not so full of water, and sometimes they begin to dry up. Trees will grow only by the deeper watercourses, which can keep their roots moist all the year. Where the grass remains good most of the year, great herds of cattle are kept to feed on it.

Where the grasslands adjoin the hot wet forests, hundreds of wild animals make their homes. Elephants, gazelles, lions, leopards and buffaloes live there. These creatures are called "big game." Sportsmen come from all parts of the world to shoot the big game, and they try to obtain lion and leopard skins and buffalo horns to take home with them on their return. In the hot grasslands there are thousands of insects, which are great pests. Flies worry the cattle, and one kind, called the tsetse fly, makes the animals sicken and die. Locusts swoop down on the crops, and eat them all up. Ants, mosquitoes, scorpions and centipedes are found everywhere.

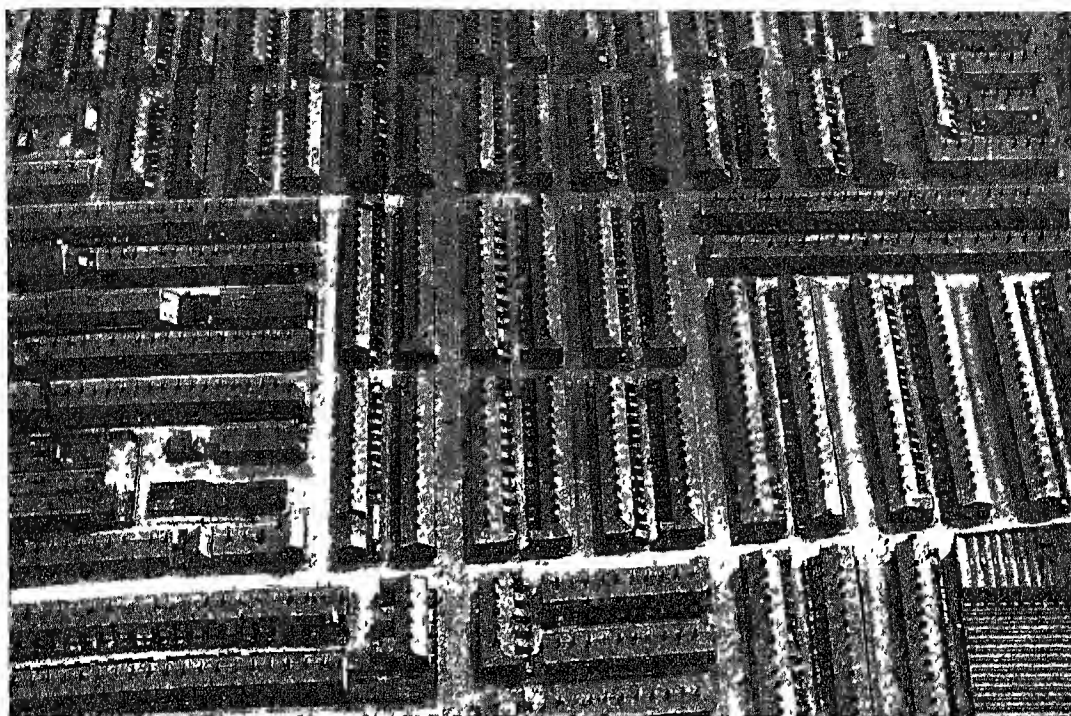
Some parts of the hot grasslands have been ploughed and planted with crops, and one plant that grows very well indeed is cotton. The cotton plant is rather like a hollyhock, which is its cousin. It needs plenty of rain when growing, and weeks of hot sunshine without any rain after it has come into flower. The seed is sown in spring, and after six months' growth the flowers appear. The plant is a bushy shrub with large leaves, and bears flowers which

are either red, golden-yellow or creamy in colour, according to their kind. In time these flowers give place to green fruits, called *bolls*. The bolls split, and inside them are small brown seeds covered with long, white hairs. In the best bolls, the hairs are often two and a half inches long. These hairs are raw cotton, which at this stage is called *lint*.

There are miles of hot grasslands in a part of Africa which belongs to the Empire and is called the Sudan. The cotton field in the picture is in the Sudan. The plants have grown and the fruits ripened, and you can see the cotton pickers now at work gathering the lint. They are black people, who laugh and chatter and sing as they work. When their bags are filled, they are taken by camels to a collecting station from where the cotton goes by lorry to the factory. All around on trees and fences the cotton fluff is hanging, just as straws are seen hanging on English hedges at harvest time.

In the factories, the seeds are separated from the lint by a method called *ginning*, and the machine doing the work is called a *cotton gin*. The seeds are then stored ready to be sown again next year. The cotton is made up into bundles called *bales*. The bales are put under presses, squeezed as small as possible, and then loaded on trains to be sent down to the coast where steamers are waiting to carry them to many lands.

England buys a great deal of raw cotton, and English factories make the best cotton cloth in the world. The cotton factories have been built near a famous English port called Liverpool. Ships sail into Liverpool harbour and unload their bales of raw cotton. The bales are taken to cotton mills. Here they are unpacked. The dirt is combed out of the raw cotton by a *carding machine*, and each tiny hair is disentangled. The hairs are next twisted together or *spun*, to make strong threads. Then the threads are woven backwards and forwards on looms to make cloth. Cotton cloth is afterwards dyed many beautiful colours, or printed in pretty patterns, and used to clothe millions and millions of the world's peoples.



CONGESTED HOUSES IN A LANCASHIRE MILL TOWN

[Aerofilms, Ltd

SUGAR

Another important crop grown in some of the hot grasslands is sugar. The sugar we use at home is of two different kinds, cane sugar and beet sugar. Cane sugar is made from the sugar-cane, a tall grass which is found in hot grasslands. Beet sugar is made from the sugar beet, which looks something like a parsnip, and grows in cool countries. A notable island with hot grasslands for growing sugar is called Jamaica. The sugar-cane is rather like an enormous grass which may grow twenty feet tall and end with a feathery tuft of flowers at the top. The plants must have water while growing, so the ground is ploughed at the end of the hot dry season. Cuttings from the tops of ripe canes grow into the best plants and these are therefore laid in furrows and lightly buried. The buds in the joints soon spring up, and young plants begin to grow. Hard work is needed

now in the sugar fields. Weeds must be pulled up, signs of blight, or disease, attended to, the ground must be watered if the rainfall is slight, and drained if it is too heavy, and manure must be added to enrich the soil. When the canes are well-grown, they are hidden amongst their own leaves, which block up the rows and make it impossible to move about in the fields. This tangle of leaves is called *trash*. The trash has to be removed. It is difficult to clear away by hand, because the leaf blades are so sharp. So the workers set fire to it. You would think that the whole crop must be burnt up, so high and fierce are the flames, but they destroy only the trash, and the canes are left standing unharmed.

After trash clearing comes the harvest. The canes are reaped with cutlasses. Each cane is cut off close to the ground, and then beheaded. The long, bare pieces of cane are taken to a mill to be crushed, the top

joints are kept for planting, the feathery heads are given to cattle for food. Look at the picture and you will see truck loads of sugar-canes about to be taken to the factory. The canes are yellow and green, or purple in colour, and some have stripes of all three colours in them. At the factory they are crushed between heavy rollers, and a greenish-yellow liquid flows out, sweet to taste and pleasant to smell. This liquid is cane juice, and will later be made into sugar. It is strained clean of all dust, and then put through treatment to make it clear and pure. The clear juice is next boiled into a thick syrup, and passed through a machine which separates the grains of dry sugar from the sticky syrup. The dry, or raw sugar comes out of one side of the machine, and the golden syrup or treacle flows from the other side. The Jamaicans call the treacle *molasses*. It is very rich and sweet. Do you like treacle pudding?

The raw sugar is still rather sticky, and brown in colour. It has yet to be made up into all the different kinds of sugar that we use. One brown kind is called *Demerara*, because it was first made at Demerara, a county of British Guiana in South America. We also have granulated, lump, castor and icing sugar, all of which are white. When the sugar comes over the sea it is all raw sugar, and the lands that buy it have factories in which the raw sugar is changed or *refined* into white sugar. The largest sugar-refining factory in England belongs to Messrs Tate and Lyle, Ltd, in London. You have all seen the name TATE on the neat cartons of sugar that mother buys. At the Tate and Lyle refinery there are machines which heat and whiten the raw sugar, and then run it into moulds where it hardens into long white slabs. Another machine cuts up the slabs into lumps. In the Tate and Lyle refinery the sugar is never touched by hand, but is all machine made, so that it is perfectly pure and clean.

Beet sugar is made by a machine which slices up the beetroots into small pieces and mixes them with water. The sweet

juice in the beetroot runs into the water until all the liquid becomes exactly the same as the beet juice itself. The beet juice is then made into sugar just as cane juice is. "Which is the better sugar," you ask, "cane or beet?" Cane sugar and beet sugar are equally good. Before the juice is made pure, that from the sugar-cane has a pleasant taste and smell, while that from the sugar beet is unpleasant, but when the sugars have been refined, not one person in a million can tell which is which.

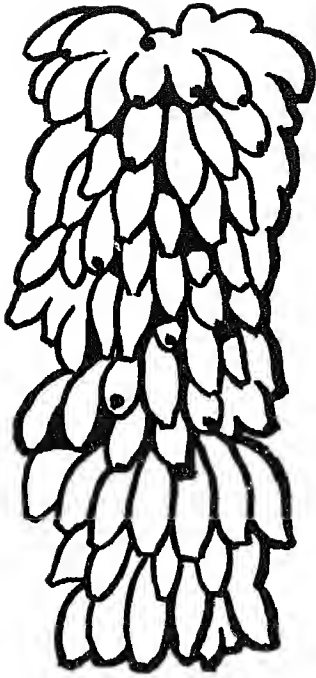
You must now look for the hot grasslands of our Empire on the globe. They will all be somewhere near the equator, though farther away than the hot wet forests. Turn to Africa and find the Sudan, where there are cotton plantations. In India, too, you will find them. Go on to America and look for Jamaica among the islands near Central America. Not far from Jamaica, on the coast of South America, you will see Demerara, where the first Demerara sugar was made. In Australia, too, are hot grasslands. You will find them in Queensland, on the east coast.

TEACHING HINTS

1. **Khartoum.**—This noted African city is 1,400 miles distant from Cairo by rail and 1,750 miles by river. It early became an important trading centre. When the Mahdist rebellion broke out, General Gordon was sent in 1884 to evacuate the garrison. He found it impossible, without great loss of life, to do this, and he determined to hold the city against the rebels. After a prolonged siege the city was captured and Gordon was slain on the steps of the palace in 1885. The city was reduced to a ruin. Lord Kitchener, the conqueror of the Sudan, was largely responsible for the building of the present beautiful city.

2. **Omdurman.**—This is the chief native city of the Sudan. It is a mud built town, except that the Khalifa's house is made with the bricks taken from Gordon's palace.

SKETCHES FOR THE BLACKBOARD



BANANAS
AFRICAN WOMAN
POUNDING MEALIES



COTTON
SUGAR-CANE

at Khartoum when that city was destroyed. The mud walls which surround the town are from nine to twelve feet thick and vary from eleven to thirty feet in height. The *suk*, or bazaar, is the show place of the town. There the various wares of the people are for sale. The whole *suk* is clean and without the indescribable odours so common in Eastern cities. Nearly every African nationality is represented at the bazaar. Each man takes a pride in showing his handiwork and wares, and gives the visitor the impression that the sale of them is a matter of complete indifference to him. Traders from remote districts come to the market with provisions, spices, cloths, weapons, perfumes, ivory carvings and silver work.

3. Tom-tom.—A kind of native drum made generally of a hollow cylinder formed of fibrous wood or earthenware. Each end is covered with skin and the drum is beaten with the fingers or the open hand. The instrument produces a hollow, monotonous sound.

4. Sudan people.—The Sudan is "the land of the Negroes," but the peoples of the northern part are largely Arab. The Negro races show great uniformity of physical characteristics—e.g. in being tall and slim, and in possessing a thick crop of black woolly hair. Among many of the Negro peoples it is customary to give agricultural work to the women.

5. Jamaica.—This is an island of the West Indies. It is the largest belonging to Great Britain in the Caribbean Sea. Agriculture is the staple industry. Over 1,000,000 acres are under cultivation, largely let out in small holdings. Cattle, sheep, goats and pigs are reared. Large quantities of bananas, oranges, tobacco, coffee, coconuts and maize are cultivated. Other products are cane sugar, tobacco, yams, arrowroot, nutmegs and lime juice. The climate is warm and agreeable. Jamaica was dis-



THE WEST INDIES

covered by Columbus in 1494 and settled by the Spaniards. It was taken in 1655 by a force sent out by Cromwell, and its possession by Great Britain was confirmed by the treaty of Madrid in 1670. The island is subject to cyclones and hurricanes.

6. Demerara.—River and county of British Guiana. Its chief port is Georgetown, the former name of which was Demerara. The colony was originally Dutch.

7. Memory work.—(a) The hot grasslands have a wet and a dry season. (b) Cattle feed on the rich grass. (c) Big game hunters shoot lions. (d) Cotton bolls are full of fluffy seeds. (e) Negroes do the cotton picking. (f) The threads are spun into cloth. (g) Sugar is made from the juice of the sugar cane. (h) The useless leaves are called trash. (i) When raw sugar has been refined it is white in colour.

8. Exercises.—(a) Why are cattle kept in the hot grasslands? (b) What wild animals are found in the grasslands? (c) What kind of weather does a young cotton plant need? (d) What do we call large bundles of cotton? (e) What is the name of England's chief cotton port? (f) What clothing have you that is made of cotton? (g) Describe a sugar-cane. (h) How is the juice obtained from the sugar-canes? (i) What is the Jamaican name for golden syrup? (j) What is beet sugar?

IX. HOT DRY LANDS

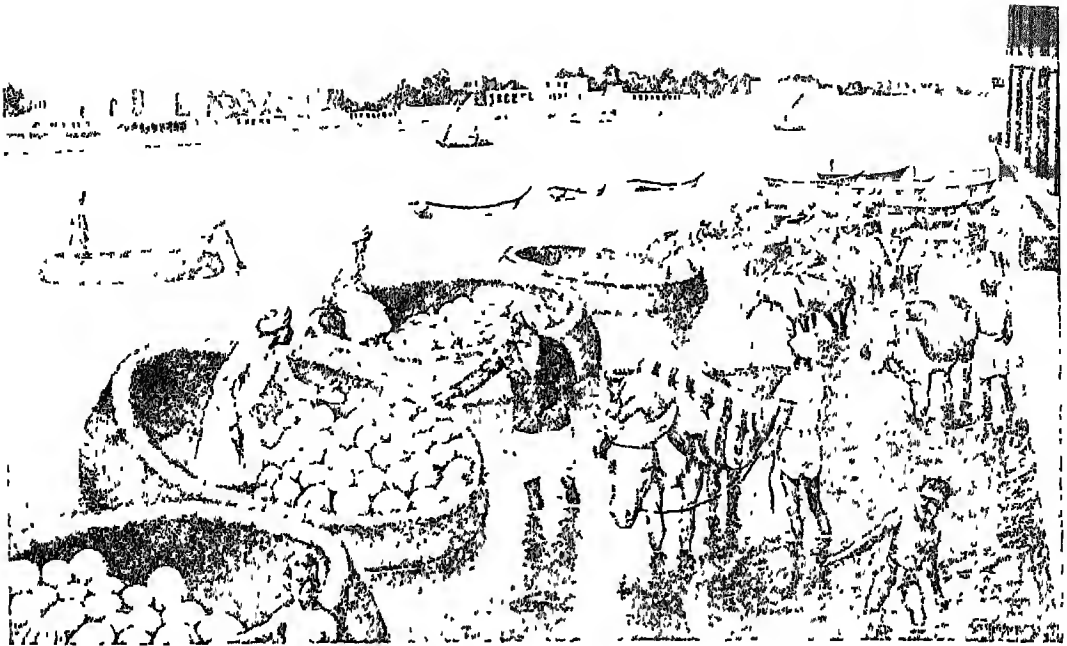
PICTURE REFERENCE



A CAMEL CARAVAN
(Class Picture No. 71 in the portfolio)

THE Class Picture shows a camel caravan transporting dates. The camels are travelling over sand, so soft that it shows the mark of every footprint. They do not look very good-tempered animals. What long legs and long necks they have! Their nostrils are wide to take in air easily. Notice the divided upper lip of the front camel, like a rabbit's, and his two-toed feet with their strong

nails. The whole procession is called a caravan, and this caravan is carrying dates across the desert. The drivers are walking close at hand. They wear loose robes, and are barefooted. The desert rolls away into sand hills in the background, beyond which a line of feathery date palms is growing. There must be water near, or the palms could not grow. These and the white walls of a village seen above the sand



GUFAS ON THE TIGRIS

hills show that the place is an oasis from which the caravan has come. Do you notice the prickly plant in the corner of the picture? It is a cactus, a plant which will grow in dry land where other plants cannot.

The above illustration is interesting to teachers both as presenting an aspect of oasis life and of the lingering ancient civilisation as shown by the basket-like *gufas* made of reeds caulked securely with pitch. Innumerable waterways, led from the rivers Tigris and Euphrates of Iraq, bring great productivity to an otherwise desert land. Although the *gufas* are clumsy craft among the modern traffic now seen on the river, they still ferry melons, dates, bricks and then white donkeys, which are needed for the return journey by land.

INTRODUCTION

Reference has been made to the gradual changes which take place in passing through the tropics from the equator towards either

pole. The whole of the tropical belt is very hot, but summer temperatures are higher near Cancer and Capricorn than at the equator. The most remarkable change is in the distribution of the rain. The heavy rain at all seasons changes to a distinctly summer rain, and finally an area of drought is reached. A belt of hot, almost rainless regions is practically coincident with the tropics of Cancer and Capricorn on the western sides of all land masses, and the hot deserts of the world are found in these belts. Along the line of Cancer are the Sahara of Africa, the Arabian and Indian deserts of Asia and the North American deserts. Along the line of Capricorn are the Kalahari desert of Africa, the West Australian deserts and the Atacama desert of South America.

This arrangement of hot deserts is largely due to the fact that, in the position in which they lie, the winds are the north-east and the south-east trades. These winds blow as off-shore winds on the western sides of

land masses. They blow from land to sea and begin their journey across the oceans as dry winds. They can give rain to eastern coasts and eastern slopes of mountains, but they leave western shores dry.

Regions of very high temperature and small rainfall are almost devoid of plant life. A characteristic feature of the hot desert is the presence of large expanses of sand, which is the product of the hard, dry, surface earth. Day temperatures are very high, the surface becomes intensely heated, and the rocks of the surface expand. The nights are cold and the chilled rocks contract. The continued expansion and contraction break the rocks into small pieces, and ultimately produce the fine material called sand. Sand storms of the desert are dreaded. The wind sweeps the loose sand from the surface and leaves new hard material to be broken up.

Fertile spots occur at places in the desert where underground water is found. These places are called oases, and, in Africa, produce the date palm. There is a certain peculiar desert vegetation consisting of plants of a prickly character, often with very thick, fleshy leaves. They have the power of storing water in their stems and leaves, and can resist loss by evaporation. The cacti, tamarisks and acacias are characteristic desert plants.

The lack of vegetation results in a scanty population, and promotes a nomadic life among the few inhabitants. Usually the beast of burden is the camel, which has been fitted by nature to do without supplies of water for long periods of time, and to travel over a loose sandy surface where sand storms often occur. Well-known nomads of the Sahara are the Tuaregs, and other Arab peoples. On the larger oases trading villages have arisen and through these all the caravans pass. At the oases the nomads obtain their water, fruit and cereals to supplement their food supplies.

Travelling by caravan dates back to the earliest historic times, and even to-day the camel caravan is still a valuable method of

desert transport despite the advance of motor roads and tracked vehicles. The Sahara is crossed by a number of routes, which converge on the ports of the Mediterranean Sea and link the Nile valley with Arabia, Palestine and Persia. The southern termini of the routes, notably Timbuktu, Kuka and Kano, were used in very early times, and are still in use to-day.

The hot deserts of the world are of little use to man unless they possess underground water or can be made fertile by irrigation. There are, however, certain regions of the hot dry lands where great development has taken place, where roads, railways and cities are to be found. In western Australia there is one region known as the "golden mile," which now produces four-fifths of all the gold obtained in Australia. This rich area has produced, so far, gold worth millions of pounds. This large amount gives some idea of the human energy that must have been expended to extract the gold from the rocks in which it is found. The early miners, attracted to the area by rumours of the wonderful wealth to be easily obtained, must have endured severe hardships. It was necessary for them to trek over many miles of bad country carrying with them all their supplies and equipment. To-day the gold area contains large towns with fine buildings, good roads, tramways and every modern convenience. They are linked to the coast by rail and by huge pipes which convey all the water which is needed. Over 4,000 persons are engaged in gold mining, but many more are employed in other occupations which have arisen in the gold area. The output of gold is steadily declining, but the area opened up and developed will continue to prosper when gold mining ceases to be a profitable occupation.

Mesopotamia, now called 'Iraq, is a dry hot area between the Euphrates and Tigris. In early days it prospered, since the people used the river water to irrigate their land much in the same way as did the people of Egypt. At a later period wars and inva-

sions led to the destruction of the irrigation canals, and the land became almost desert. To-day great irrigation works, initiated by the British during their trusteeship after the First World War, are restoring fertility to large areas. Apart from oil, which is the most valuable export, large amounts of dates, barley, wool and wheat are sent to other countries. Cotton is also produced in increasing supplies, while rice is a notable crop of the marshy lower river. The date palm is the chief source of wealth to the river people of 'Iraq, and the fruit is a staple food. When picked ripe it has the appearance of a firm ripe plum and is quite different from the common article of commerce. An interesting type of boat is used for ferrying across the Tigris. This is called the *gufa*, and it is practically a large circular basket made of reeds. Another typical river boat is the *bellum*, a light canoe which can be propelled by paddle or pole according to the depth of the stream. Away from the fertile strips bordering the rivers live the wandering Bedouins, "the people of the camel." They are the nobility of 'Iraq's Arab population.

CHILDREN'S STORY

The lands we have come to now are the hot dry lands of the British Empire. The people of these lands hardly ever see any rain. All the year round the weather is dry. The winds that blow bring no rain with them at all. Consequently the ground is dried up, and nothing will grow on it. Such land is called a hot desert. The air in the desert is burning hot all day, and very cold at night. Because of this great difference between day and night, the ground is first baked and then half-frozen, and everywhere it splits up into fine, dry grains of dust or sand, which is soft to the tread. Hot winds blow the sand into hills and valleys, which stretch for miles and miles as far as the eye can see. Here and there in the desert an underground spring of water will bubble up and moisten the land around it for a

distance. Directly the soil becomes moist, trees spring up, people build small houses around and grow crops. Such a fertile spot in the desert is called an oasis.

An oasis is a very welcome sight to travellers through the desert. You will wonder whether it is possible to live in such lands. No, in the actual desert nothing can live, for there is no water. People live in the oases, however, and they also travel about the desert from one oasis to another. Such people are Arabs. They make their journeys on camels, sleep in tents which are easily put up and taken down, and carry enough water with them for each journey. What food do they eat? Look at the picture,



A BEDOUIN

and notice in the background the line of palm trees. They are date palms. The fruit from these trees supplies all the desert peoples with food. Without the date palm they could not live.

Dates are sweet, reddish-brown fruits with hard stones inside them. They are sold in boxes at the grocers' shops, or can be bought by the pound in a sticky mass. They grow in clusters on the date palms, which spring up around an oasis in the desert. The date palm is a tall tree, with large, feather-like leaves and a bark covered with rough scales. Sometimes a single leaf is twelve feet long, more than twice the height of a man! The palms bear sweet-scented white flowers

his flocks and herds before he went to Palestine, used to be under the care of the British. Two great rivers run through it, and without them the land would be a hot desert. The two rivers join before they reach the sea, and at this spot are the largest groves of date palms in the world. The palms yield far more dates than the people can use, so many thousands of tons are sent to other lands, and more than half the dates eaten in Britain come from Basra, the port of 'Iraq.

The two rivers flowing through 'Iraq are known as the Tigris and Euphrates. From these lovely rivers water can be drawn off to moisten great fields lying around, and so crops can be grown on the hot, dry land. Dates form the largest crop. Other fruits grown are grapes, oranges, lemons, figs, mulberries and melons. Often they are carried on the backs of strong white donkeys. The strange boats rowed backwards and forwards on the river Tigris are not seen anywhere else in the world. They are called *gufas*, and are probably the oldest kind of boat now in use. They are round in shape, made of reeds, and plastered inside and out with pitch to make them water-tight. People who wish to cross the Tigris are taken over in *gufas*, and from them they sell the fruit. Another boat used on this river is the *bellum*, a light canoe, which is easily paddled from place to place. The buildings on the banks of the Tigris are painted white to keep them as cool as possible, and they all have flat roofs. The Arabs who grow crops live in huts made of reeds, and there are also many Turks and Jews in 'Iraq.

In olden days 'Iraq was a rich and pleasant country. The water from the two rivers was run off in ditches to water the land for miles around, and splendid crops were raised. Then the land was conquered by enemies who cut off the supply of water to the fields, and all the crops died. The land became a hot, sandy desert. At last the British helped the people to build fine waterworks to water the land again. Now we can obtain not only a great supply of dates

from Basra, but also cotton, barley and many other crops as well.

Now find on the globe the hot dry lands of the British Empire. Look at Africa first. There are some in the north and some in the south-west. Find the river Nile. The land around the Nile would be hot, dry desert, if it were not for the water that is run off from that river. From the Nile, pass along to the east and you will come to 'Iraq with its two rivers. Find out which is the Tigris, where the *gufas* are rowed from one bank to the other. Then run your finger east and south to find Australia. There is an enormous hot desert there, in the middle and west. Water has been run into a small part of it through huge pipes reaching to the west coast, and wherever water can be had, towns have grown up. People who live in the hot dry lands of Australia dig amongst the rocks to find gold. They could not do this, however, if they were not supplied with water. Life in the hot dry lands of the British Empire is never very easy.

TEACHING HINTS

1. Transport routes.—In hot dry regions routes must be determined by wells or other supplies of water. Man and beast require fresh water. If transport routes are to be used for the movement of merchandise, the minimum amount of food must be carried in order that the maximum load shall be of commercial value. Water holes, therefore, determine the routes traversed in undeveloped regions. Having learnt the position of the water holes, the travellers can find their way by the stars. The fitness of the camel for movement over the sandy desert should be emphasised.

2. The camel—important characteristics.—

- i. Two toes on each foot, large pad beneath toes for aid in walking on loose sand.

- 2 Dromedary or Arabian camel has one hump Bactrian camel has two humps Reserves of food are in the hump
- 3 Heavy rail of eyelashes to keep out sand and protect the eyes from the sun
- 4 Can close nostrils to shut out sand during sand storms
- 5 The stomach is divided into three compartments, and a store of water can be kept there
6. Camels can travel seventy to eighty miles a day.

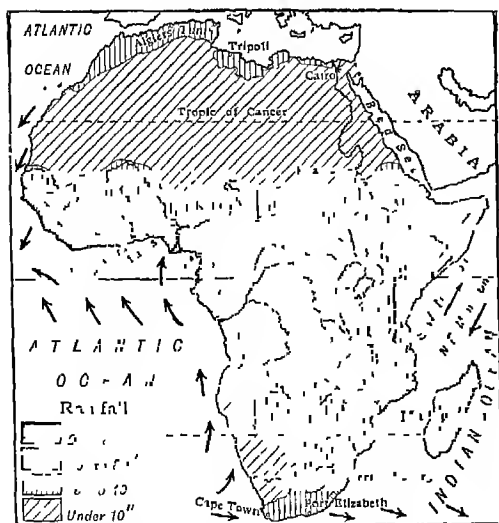
3. Oases.—In many parts of the hot desert underground water may be tapped by sinking wells Where such water is obtained cultivated spots are found The camel caravans crossing the desert pass from one oasis to another The narrow fertile strip bordering the Nile in Egypt is an oasis, but the water which promotes fertility is the Nile water

4. Bellum.—This corresponds in use to the gondola of Venice. It is a long, narrow canoe.

5. Mesopotamia and 'Iraq.—The word Mesopotamia means "between the rivers" 'Iraq forms the south-east part of Mesopotamia, and is sometimes called Lower Mesopotamia. It corresponds with ancient Chaldea and formerly included part of Babylonia During World War I. it was taken from the Turks by the British, who improved the navigability of the Tigris and constructed railways from Basra to Baghdad Population about 2,000,000

6. Memory work.—(a) Nothing will grow in the desert because there is no water (b) Date palms grow in the oases (c) The dates hang in large bunches (d) Camels carry bags of dates across the desert (e) Dates come from 'Iraq (f) *Gufas* sail on the Tigris

7. Exercises.—(a) Why are hot deserts sandy? (b) What is an oasis? (c) Name all the ways in which the date palm is useful to the Arabs (d) Tell all you know about a camel. (e) How do caravans find their way across the desert? (f) From what port in 'Iraq are dates sent to England? (g) Describe a *gufa*.



Arrows show the direction of prevailing winds
AFRICA—RAINFALL



AFRICA—VEGETATION

sions led to the destruction of the irrigation canals, and the land became almost desert. To-day great irrigation works, initiated by the British during their trusteeship after the First World War, are restoring fertility to large areas. Apart from oil, which is the most valuable export, large amounts of dates, barley, wool and wheat are sent to other countries. Cotton is also produced in increasing supplies, while rice is a notable crop of the marshy lower river. The date palm is the chief source of wealth to the river people of 'Iraq, and the fruit is a staple food. When picked ripe it has the appearance of a firm ripe plum and is quite different from the common article of commerce. An interesting type of boat is used for ferrying across the Tigris. This is called the *gufa*, and it is practically a large circular basket made of reeds. Another typical river boat is the *bellum*, a light canoe which can be propelled by paddle or pole according to the depth of the stream. Away from the fertile strips bordering the rivers live the wandering Bedouins, "the people of the camel." They are the nobility of 'Iraq's Arab population.

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When the blooms fall, little white dates are left behind on long stalks that hang in bunches from the top of each tree trunk. Soon the dates turn green, and later they change to a reddish-yellow that deepens as they ripen. The riper they are, the sweeter they become. Then they are ready to be gathered.

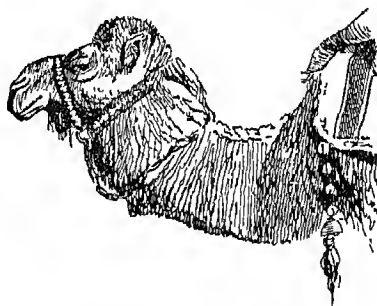
Boys climb the scaly trees, clinging to the bark with their bare toes. They cut off the heavy bunches of dates with sharp knives, rather like saws. At their approach, dozens of palm rats that eat the dates scamper away over the great leaves, drop down to the ground like furry balls, and run off to hide themselves. The bunches of dates are handed down carefully, for they must not be bruised. Then parties of men and women sit on the ground with the bunches before them, picking off the dates and sorting them according to size. The fruit is next packed in boxes, or in bags of matting, to be taken on camel-back or in motor lorries to the nearest railway station.

Not only the fruit, but all parts of the date palm are useful to the people of the desert. A man who owns a few of these trees has all that he needs. The fruits can be eaten fresh, or dried, pounded and made into paste which will keep a long time. The stones are ground up and mixed with other food for the camels, horses and dogs. The wood of the trunk is used in building houses and in making fences and furniture. The broad leaves make excellent thatch for the roofs of the houses. The stringy fibres of the leaves are made into cord and rope which is used to tie baggage on the camels, or they are fluffed out into stuffing for saddles, and even twisted into fine thread for sewing. During the cold nights, a blazing fire may be made from the stalks of the leaves, and when the trees are cut down, the buds at the top are cooked and eaten like cabbages.

Many oasis people could not send away their dates to other countries if it were not for the useful camels which carry them across the desert. The camel is the "Ship of the Desert." It can go without water or food

much longer than any other animal, because it stores up food in its hump, and water in its stomach. It has a hard mouth, and can eat prickly plants that sometimes grow in the sand among the rocks, and it can close its nostrils when a sand storm comes. Its long eyelids shelter its eyes from the sun, and protect them from grains of sand carried by the wind. It has large pads under its broad feet, which are suited to walking over sand.

The camels in a caravan are fed on dried dates. The drivers eat dates, and sometimes cheese made from camels' milk. They travel over the desert at night, the men walking by their camels to keep warm, and singing songs as they go. They love their camels, and treat them kindly. They find



HEAD OF A CAMEL

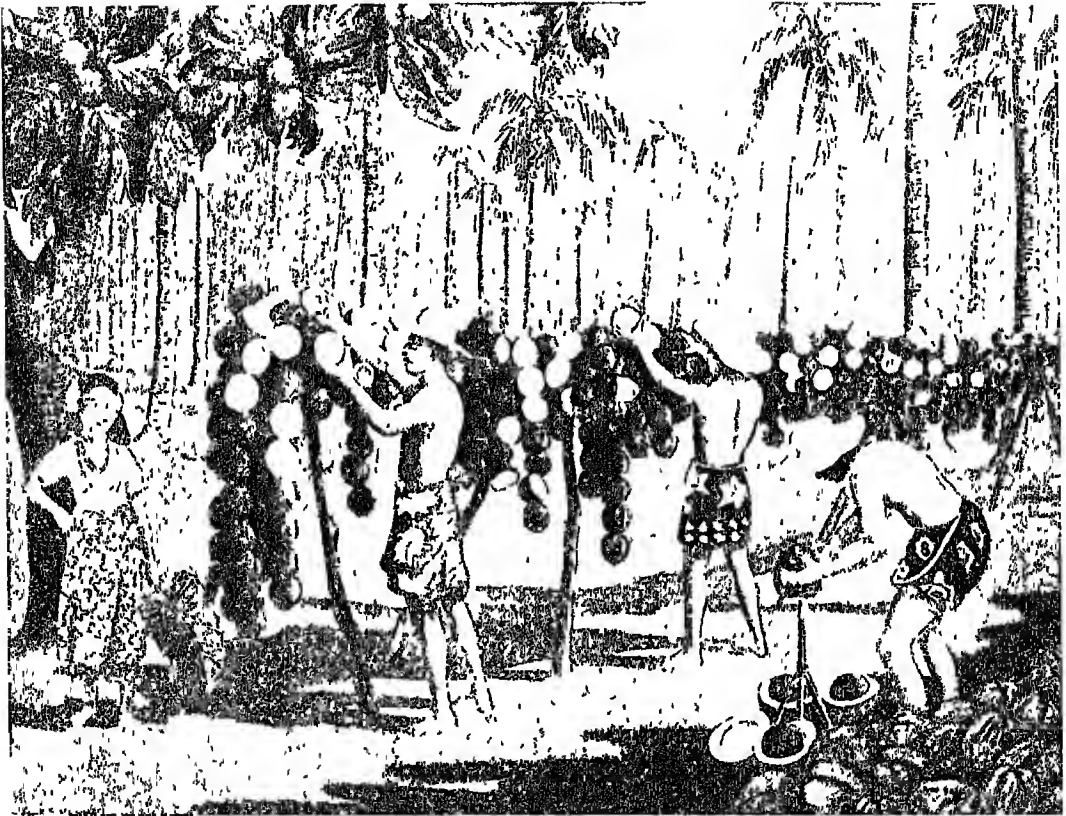
their way by the stars, for there are few roads across the desert. In the villages of the oases, the small flat-roofed houses are made of sun-dried bricks of clay, washed with white to keep them cool in the glare of the sun. The people sell dates, grow grain, keep sheep and goats on the short grass, and weave cloth from camels' hair, with which they make tents and carpets. You see that where there is water in the desert, the ground is good for crops and grass. It is just the lack of water which makes it so bare and useless everywhere else.

THE GUFU

On many boxes of dates you see the name 'Iraq. This land, where Abraham lived with

X. SUNNY ISLANDS

PICTURE REFERENCE



DRYING COPRA IN THE SOUTH SEA ISLANDS

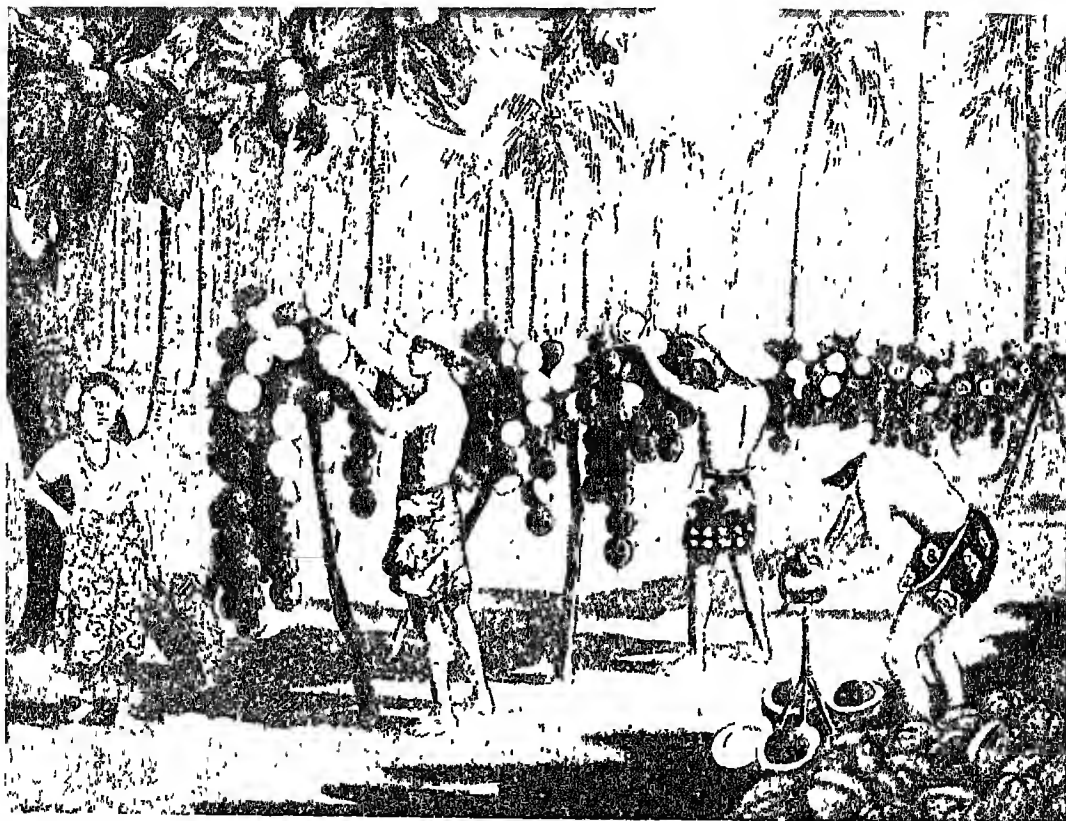
(Class Picture No 72 in the portfolio)

COPRA is the white fleshy lining round the inside of a coconut. When coconuts are taken from the trees they have a thick, green overcoat on them. The man on the right of the picture is splitting the overcoats off on an iron spike and his friends are hanging up the white parts to dry

in the hot sun. Notice the shady white hats and the gay waist-cloths the men wear. The dainty little lady with the big leaf fan likes gay colours, too, and also bright flowers and necklaces for ornament. She is fond of the fruit of the breadfruit seen behind her, when cooked the fruits taste very much like dumplings.

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INTRODUCTION

Scattered about the oceans are countless tiny islands, many of which are a thousand miles or more from the nearest land mass. Some of these small areas, situated in a world of water, are merely the tops of mountains standing on the ocean bed, others are coral masses, built upon the summits of mountains which do not quite reach the ocean surface. The islands are, in the main, either of volcanic or coral formation. Often, however, volcanic islands are surrounded by coral reefs.

The Pacific Ocean is particularly rich in small islands, many of which are grouped in archipelagoes. Some are too small or too rugged to be of service to man, and others are too little above sea level to be inhabited. Many of the groups, however, are the homes of interesting peoples. The islands may be divided into two classes, those which are "high," or of volcanic structure, and those which are "low," or of coral formation. The New Hebrides, the Fiji Islands, the Samoan group and the Hawaiian Islands are high and volcanic, while the Caroline, Marshall, Cook, Gilbert and Society Islands are low and coral built.

The important British colony of Fiji consists of about 250 islands and has a total area equal to that of Wales. The islands stretch from 15° to 20° south of the equator, and are on the opposite side of the world to the British Islands. The two chief islands are Viti Levu and Vanua Levu. These are mountainous (volcanic) and contain large rivers. Many of the highest mountains are volcanic cones and hot springs are found. Earthquakes often occur. Most of the islands are fringed with a coral reef. Suva, the capital, is a port of call for ocean steamers. It stands at the head of a large open bay, a coral reef acting as a natural breakwater.

Although the islands of the Pacific are very numerous, they nearly all lie in the tropical belt between Cancer and Capricorn. Their small size and distance from the large land masses give them common character-

istics with regard to climate. The moderating influence of the great ocean and the beneficial effect of the prevailing trade winds, mean that they are never so hot as continental areas of the same latitude, and they have an almost uniform temperature throughout the year. Drought is unknown, even though some of the islands lie in the latitudes of the hot deserts of the large continents. The climate, in most cases, is healthy, and white traders can usually make a permanent home among the native peoples. In the main the latter are a peaceable set of people, who have helped greatly in the development of their islands under the influence of white men.

The uniform high temperature throughout the year, and the fairly heavy rain, result in a varied and abundant vegetation. A distinction must, however, be made between the volcanic islands and those of coral formation. The volcanic islands have very fertile soil and are ideal places for sugar-canes, which can be grown only on well-watered tropical coast lands. The windward sides of the islands which receive the heavier rainfall are clothed with rich tropical vegetation. Low-lying coasts are usually fringed with mangroves. The low coral islands have poor soil but they are suited for the production of the coconut palm. Coconuts rank first among the products of many of the islands, and copra is often one of the principal exports. Before white men came to the islands the people obtained all their food from what the sea and the land could give them. In the low islands coconuts, pandanus fruit and fish were the chief foods, but in the larger islands the taro was the principal food crop of the island inhabitants. In some of the islands boiled green bananas formed a part of the diet, supplemented with breadfruit, taro, yams and tapioca. To-day the white trader stocks a large assortment of foods and materials for trading purposes, and moreover, under European influence, the island people readily cultivate rice, tobacco, coffee and maize.

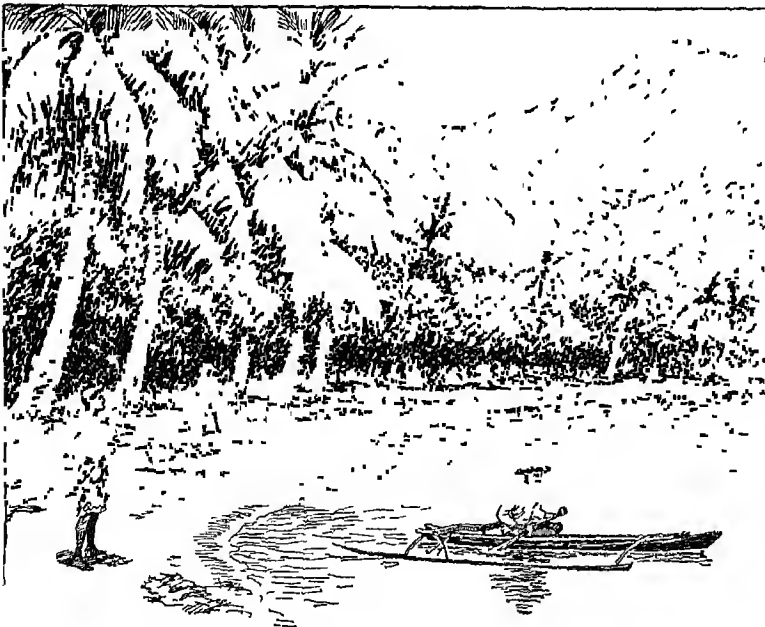
Most of the island peoples are expert boatmen and fishermen. They had a good knowledge of the seas round their island homes long before the appearance of the white men among them. They had their own charts of the ocean around them, and possessed a wonderful sense of direction, often travelling long distances to neighbouring islands without the aid of any instruments for guidance. Often their boats are made out of the trunks of breadfruit trees. No nails are used, but all the parts are securely bound together with coconut fibre. Sometimes they use rafts contrived from bamboo poles. Dugout canoes fashioned from the trunks of large trees are used for fishing near the coral reefs, and an outrigger made of a light log of timber, fastened to the canoe by crossbars, steadies the boat in surf. Cane traps made of split bamboos bound together with plaited rattan vines are used for catching fish. These are about ten feet long and six feet in diameter. There is an opening at each end, and these openings converge to a hole in the centre, through

which the fish pass but cannot return. These traps are anchored in deep water overnight, and are usually full in the morning.

The native huts have a timber framework and sunken low mud walls with a thatched roof of palm leaves. Finely woven grass mats, capable of being rolled up, are hung in the gap between the roof and the top of the wall. In some of the islands the buildings are most elaborate. In parts of the Solomon group it is the custom to build houses at a height of several feet above the ground. The roof is always thatched with palm and pandanus leaves, and supported on a row of posts, but the more careful and artistic structure of the walls distinguishes them from the huts already mentioned. Considerable taste is shown in the elaborate colour scheme of dyed and plaited palm leaves comprising the fronts of the buildings.

The white population of the Pacific Islands is small. The white traders often succumb to the influence of a warm climate and an indolent population, and some of them lose

their European smartness and cleanliness. They give cheap forms of manufactured goods in exchange for the products of the islands, for which vessels call periodically. Many have native wives and half-caste children, and in that way become a real part of the region in which they dwell. There are now many Indians and Chinese working on the plantations. There is no antipathy between the various peoples, but each set more or less lives its own life. Many diseases have



TYPICAL SCENE IN THE SOUTH SEA ISLANDS

appeared in the islands due to the influx of outside peoples, and measles, when it first appeared, caused a very high death-rate among the children Whooping cough, similarly, was responsible for an enormous number of deaths Leprosy is destructive in the islands into which it has been introduced

Flies and mosquitoes are a great nuisance in many of the islands The mosquitoes can be kept under only by spraying all stagnant water with paraffin The river mouths and coastal waters are usually infested with crocodiles. Snakes are abundant, and centipedes over a foot in length are common Beautiful birds and butterflies are a wonderful contrast to the repulsive creatures of the land and water The butterflies are of an enormous size, and the birds, such as pigeons, parrots, parrots and cockatoos, are brilliantly coloured.

We have seen that the islands are usually very small, and that the groups are scattered over a very large ocean Each little island is producing material that is badly needed in the great industrial countries of the cool regions of the world, but the amount produced in each island is obviously small The total produce of all the islands is, however, quite considerable. It is impossible to create a multitude of well equipped ports capable of dealing with the large ocean liners The cost would be too great and the time taken by a boat to obtain a full cargo too long to be a profitable arrangement The method adopted is for small coasting vessels to collect the produce from the islands and take it to a convenient central point which has been equipped as a modern port. The coaster can be off-shore and receive its cargo from the local canoes and boats The port, at the central position



PLAITING PALM FRONDS FOR ROOFING

among the islands, can not only accommodate the large ships, but it is able to do any necessary repairs, and is also a coaling station Such ports, which are called *entrepôts*, are Suva, in the Fiji Islands, Apia in the Samoan group, and Honolulu in the Hawaiian Islands They owe their importance to their excellent positions for collecting and distributing material, and their positions on the great trade routes across the oceans.

CHILDREN'S STORY

We now come to the sunny islands of the British Empire They are dotted about the great seas, sometimes a thousand miles away from any large stretch of land. They lie near the equator, and enjoy warm weather all the year round Breezes from the sea bring them rain and prevent the air from becoming too hot Beautiful sandy beaches slope down to the warm waters The brown boys and girls of these islands love the sea, and spend hours playing and swimming in it Canoes glide about on the waves, and deep down in the clear water thousands of prettily-coloured fish dart hither and thither The high islands are made of very hard rock The low, sandy-edged islands are of coral, and were built up by millions of tiny sea creatures whose

soft bodies had a hard framework. These little creatures lived tightly packed together, and when they died their hard skeletons left behind formed coral. On these lovely islands grow some of the most useful trees in the world. They are coconut palms.

The coconut palm is a tall graceful tree with long leaves divided in a feather-like manner into narrow, glossy strips. The flowers grow in spikes, and give place to branches of coconuts, hanging at the top of the trunk. They are big fruits, bigger than a man's head. After they have been



COLLECTING TODDY

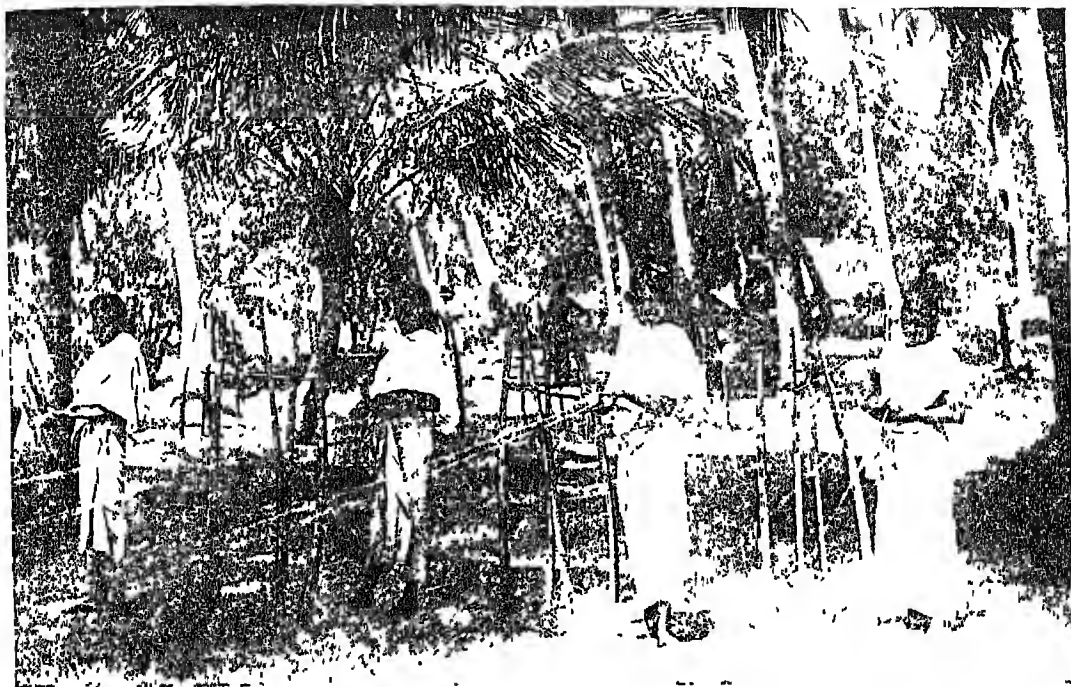
gathered, the nuts are split open. Each nut is hollow in the centre, which contains the milk for drinking. As it dries in the sun, the white fleshy coating inside the shell loosens, and is easily taken out. This eatable part of the coconut is called *copra*. The hard shell is left behind, and also the overcoat, two or three inches thick, which covers the shell. This overcoat is husky and fibrous, and is called *coir*. The coir has a brown skin over it, covering all.

When the copra has been taken out of the nuts, it is dried on fences in the sun. You can see this going on in the picture

When quite dry, the copra is packed in bags and sent away to other lands, where it is very quickly made use of. It is first grated into fine pieces and then squeezed under heavy presses, until the coconut oil runs out of it. The crushed part left behind is called *oil cake*, and is given to cattle to eat. The coconut oil hardens into a kind of white wax which is very useful indeed. The best qualities are used for making margarine and the remainder for making soap and candles. Sometimes the white meat of the coconut is not dried, but taken out of the fresh nuts. It is then shredded and made into desiccated coconut, a very wholesome food used in making sweets, biscuits, cakes and puddings.

The coconut is not the only useful part of the coconut palm, however. Some use is found for every part of this wonderful tree. A drink called *toddy* is made from the sap of the flower head. When toddy is boiled it produces brown sugar, and when left to ferment it turns into vinegar. Before the young nuts are ripe, they have sweet water instead of milk inside them, and the soft kernels are very refreshing to eat raw. The hard shell of the coconut is made into cups and spoons, or carved into jewel cases and ornaments. The thick coir is soaked in water and pressed. It then gives fibre for brushes, brooms, matting and rope. The strong mid-ribs of the leaves make blazing fires. The branches are woven and used for roofing village homes. The hard trunk of the tree is made into houses, furniture, walking sticks and buttons. In fact every part of the tree is useful.

Although the coconut palms grow wild, they are also cultivated in large plantations because they are worth so much money, and are very little trouble to grow. The inhabitants of the islands are peace-loving people, and willingly help the white men in whatever work they wish to do. Before white men came to them, they lived on food that the sea and land gave them. They had plenty of coconuts and fish. Sometimes they cooked the roots or leaves of wild plants and ate them. On many of the islands banana



COCONUT TO COIR—SPINNING THE FIBRE INTO YARN

[Courtesy, India House]

trees grew, and the people ate the ripe fruit, or boiled the bananas when they were young and green. Nowadays white traders carry other kinds of food to the islands, and exchange them for coconuts. They have also taught the people how to grow tobacco, coffee and rice.

The men are splendid fishermen, and travel for miles over the seas in their little boats. They make their boats from the trunks of trees. No nails are used, but all the parts are bound together with coconut fibre. They make big cane baskets with very small openings at each end for catching fish. The fish swim in at the openings but cannot get out again. These traps are set in deep water overnight and are usually full in the morning.

The island houses have wooden frames. Low walls of sun-baked mud are built up around the frameworks, and large gaps are left between the tops of the walls and the roofs. The roofs are made of coconut branches and thatched with palm leaves.

In the gaps between the walls and roofs grass or coconut fibre mats, beautifully woven, are hung. They can be rolled up at will. Sometimes the houses are built high up above the ground. The mothers dye the palm leaves and mats many bright colours, and make their homes look pretty and gay.

Flies and mosquitoes are a nuisance in the islands, and so the pools are sprayed with paraffin, which kills the baby insects. Crocodiles abound in the rivers. Snakes hide among the grasses. Beautiful birds and butterflies flit over the sunny fields, and some of the birds, such as parrots and cockatoos, are brilliantly coloured. The copra and other crops, one of which is sugar, are collected from the islands by small coasting vessels which take their cargoes to one or two large central ports where the big steamers call.

We must now look on the globe for the sunny islands of the British Empire. Most of them are found scattered about a great ocean called the Pacific Ocean. Let us start

from the British Isles. Run your finger southwards and then eastwards, until you come to India. To the south of India is a large and beautiful island called Ceylon. You remember that tea was grown there. Now you know another crop from Ceylon. Large plantations of coconut palms grow there, and every year ships leave Ceylon laden with copra, coconuts in shell, coconut oil, bristle fibre, coir rope and coir door rugs. Ceylon is one of the loveliest lands in the world.

Now pass your fingers eastwards and you will soon find the Pacific Ocean. Notice what numbers of islands there are. Look for the equator, too, so that you can see how near it is. Of all these sunny Pacific islands, one little group is the most important. This group is called the Fiji Islands. In Fiji is the central port-of-call where the big steamers stop to take up cargoes from the coasting vessels. The name of the port in Fiji is Suva. Steamers leaving Suva bring good things from the sunny islands of the Empire to Britain and to many other lands.

TEACHING HINTS

1. Volcanoes.—Volcanoes are conical hills and mountains formed by erupted matter. At the top they have a cup-shaped cavity, called the crater, from which a tube or pipe passes downwards to the hotter part of the earth's interior. Volcanoes, at times, discharge steam, lava and solid matter. Material which has collected in the crater during the quiet period is first discharged, then follows steam and finally lava rises up, fills the crater, and usually overflows and runs slowly down the sides of the volcano often doing enormous damage.

2. Earthquakes.—Earthquakes are tremblings or shakings of the ground. From the centre of disturbance a wave motion of the crust travels in all directions. This causes an up and down movement of the surface. Earthquakes are common in volcanic areas. If earthquakes occur beneath the sea huge destructive waves are formed.

3. Entrepôt.—A port in which the imports and exports are practically the same materials. Such a port collects from and distributes to a scattered area in which it holds a good position for such work. A large commercial port will sometimes have an entrepôt trade in addition to its other work. London imports much material for the country in which it is the largest port, but some of the material is exported to countries of Europe which are unable to do their own carrying trade.

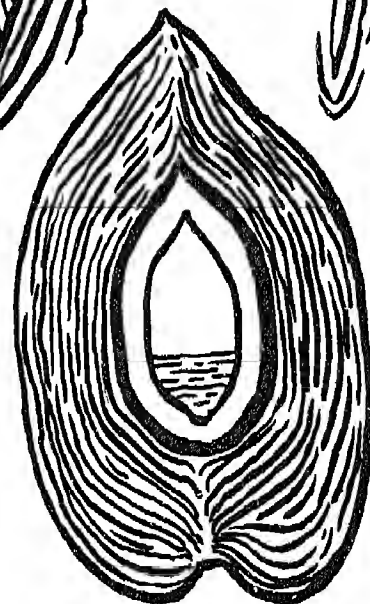
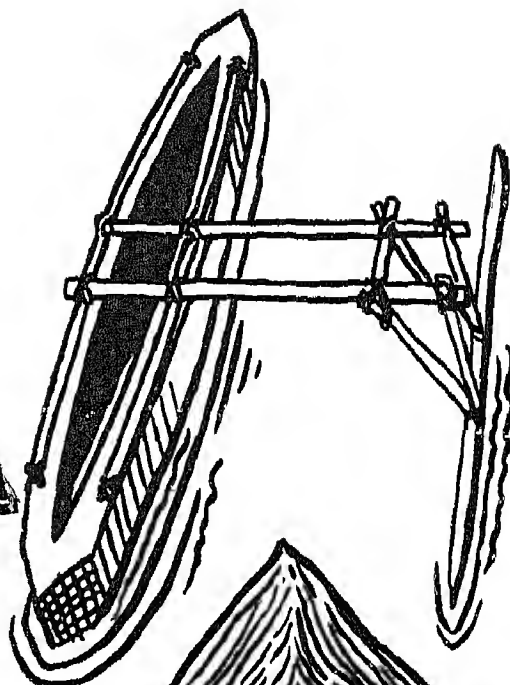
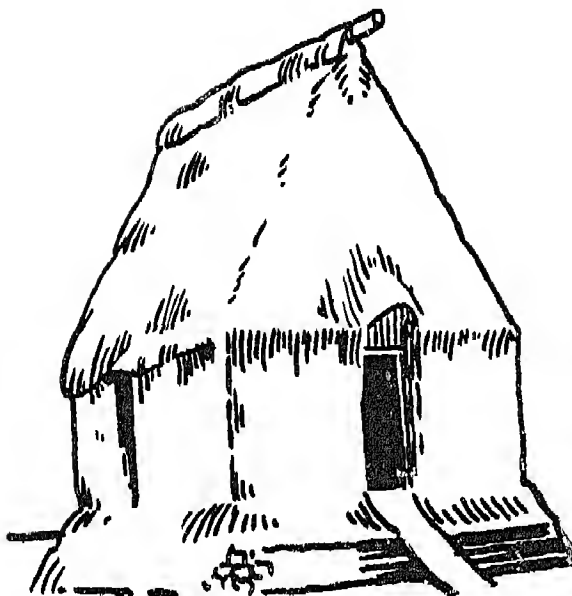
4. Coral.—The coral polyp can live only when the water is warm, salt, clear and shallow. Coral rock is thus found only near the coasts of hot lands and there are always breaks where rivers enter the sea. Rivers carry fresh muddy water which prevents coral activity. The polyps construct the stony framework called coral from the lime present in sea water. Coral structure falls into three groups—(1) Fringing reefs, (2) Barrier reefs; (3) Atolls.

A fringing reef is always close to the shore. A barrier reef is at a greater distance from the shore than a fringing reef. An atoll is a ring of coral enclosing a lagoon. The largest stretch of coral rock is the Great Barrier Reef off the coast of Queensland, which has a length of about 1,200 miles.

5. Memory work.—(a) Many sunny islands are made of coral. (b) Coconut palms grow in the sand by the sea. (c) Copra is the name of the white lining inside the shell. (d) Margarine is made from coconut oil. (e) Large steamers call at Suva.

6. Exercises.—(a) How are coral islands made? (b) Describe a coconut palm. (c) How does the coconut palm provide the people with food and drink? (d) What is done with copra? (e) What things are made from coconut oil? (f) Where have you seen coconuts? (g) Which part of the coconut is the coir? (h) How do the people of sunny islands catch fish? (i) Describe an island house. (j) What things would you like to do in the Sunny Islands?

SKETCHES FOR THE BLACKBOARD

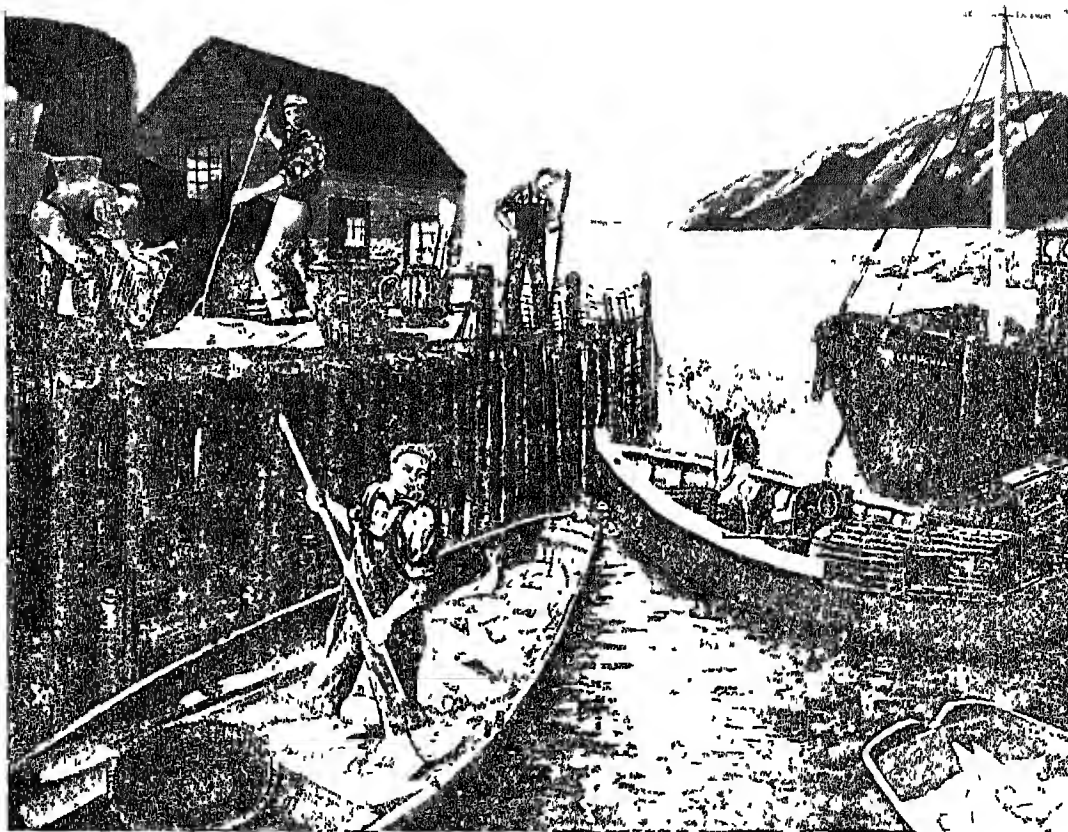


GRASS HOUSE OF FIJI
NEW GUINEA WOMAN MAKING A
COOK POT

OUTRIGGER CANOE
SECTION OF A COCONUT

XI. LIFE ON THE SEA

PICTURE REFERENCE

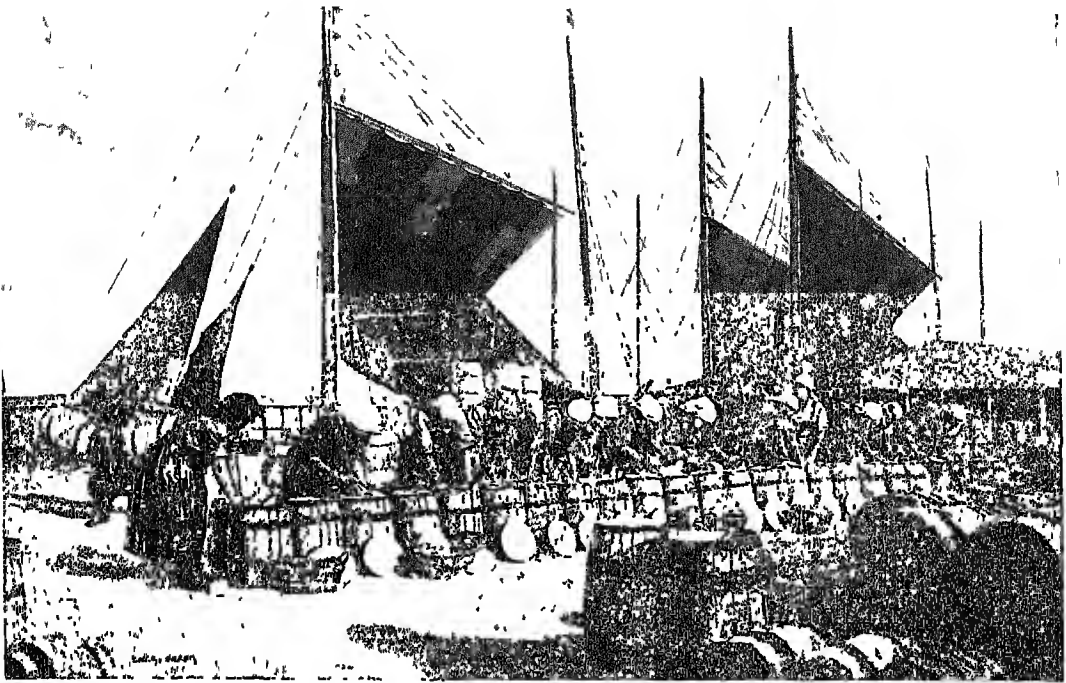


COD FISHING IN NEWFOUNDLAND

(Class Picture No 73 in the portfolio)

MOST British children have tasted cod and have seen the large greenish-grey and white fish at a fishmonger's shop. Many cod are caught in the seas round Britain and even more off the coast of Newfoundland. The picture shows a strong wooden jetty built from the shore at a Newfoundland fishing village, and a man landing a boatload of cod brought from

the large ship. He slips the prongs of his fork round the huge heads of the fish and tosses them to the jetty. A fishing net is hanging up to dry, but the boatman has probably been fishing with baited hooks attached to the long line in his basket. Do you notice how rocky the shore is? The rocks are very dangerous for ships. But lobsters live among the rocks, and in the motor-



(Reproduced by permission of the Controller of H M Stationery Office)

HERRING PACKING

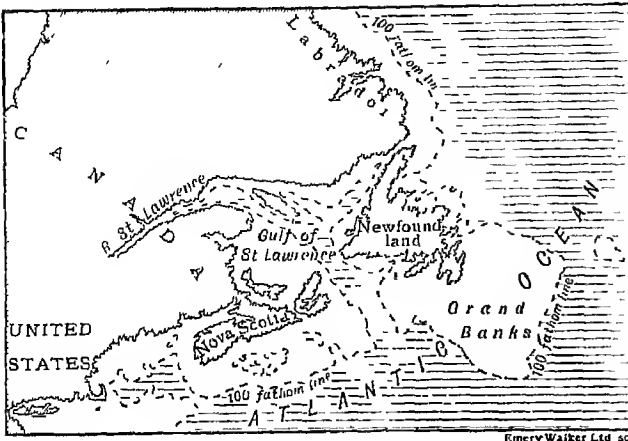
boat are the pots or traps the man sets to catch them. He is holding up a fine lobster for his friend to see. On shore the cod will be split and dried in the sun and the lobsters will be put in tins. Then both can be sent a long way to other countries without going bad.

INTRODUCTION

The three great fishing grounds of the world are those of eastern Canada in the North Atlantic, the North Sea fishing grounds, and those of the North Pacific, near Japan. These are the centres of what are called the "deep sea" fisheries, but it should be noticed that, although the men are engaged in their work many miles from land, the fishing is always carried on in shallow parts of the sea. The Grand Banks,

near Newfoundland, are a shallow part of the Atlantic, and the Dogger Bank, in the middle of the North Sea, is the shallowest part of that sea. Fish are always more abundant in shallow water than in the deep sea, because there they find a good supply of their food called *plankton*.

The Grand Banks, lying south-east of Newfoundland, have an area of 36,000 square miles which is more than a quarter of the size of the British Islands. Fishing vessels from Europe, on the other side of the Atlantic, are to be found there, side by side with those from Canada and the United States. The cod fishery is the most extensive in the world, and the greater portion of the population of Newfoundland is engaged in some part of the fisheries. On the east coast of England and Scotland, adjacent to the fishing grounds of the North



THE GRAND BANKS OF NEWFOUNDLAND

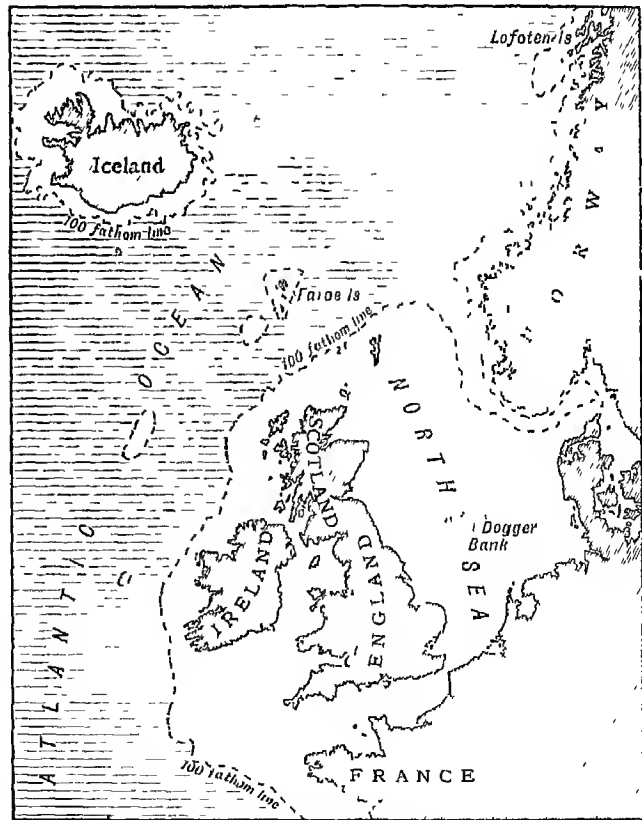
Sea, is a large number of fishing ports facing the Dogger Bank. Similarly, on the European side of the sea, the fishing ports of Norway, Denmark, Holland and Belgium are to be found. Cod is again the chief fish caught, but in both areas hake, halibut, plaice and haddock are also abundant.

Deep sea fishing in the North Sea is done by long liners, steam drifters and trawlers. Long liners obtain fish by hook and line, the drifters catch the surface fish, and the trawlers the fish living in the deeper water. Each type of fishing vessel is comparatively small, and each kind carries a crew of from ten to fourteen people. In addition to the steamships are motorships and a large number of local sailing craft fitted with auxiliary engines. In the Newfoundland area the ships are called bankers, and the small, flat-bottomed boats accompanying the bankers are called dories. The vessels remain at sea sometimes for months at a time. When they return to port, the fish, which have been split and salted on board, are taken ashore, washed and dried. Steam

trawling is now carried on to a considerable extent.

The shallow coastal waters of eastern Canada, eastern and southern Britain and western Europe are regions of what are called the inshore fisheries. The herring fishery off the east coast of Britain is important, mackerel are caught in the English Channel, the pilchard fishery flourishes off the coasts of Cornwall and Devon, and the sardine and tunny fisheries are important near the coasts of Spain. The herring fishery is also important off the coast of

eastern Canada, particularly in the Bay of Fundy between Nova Scotia and New



MAP OF WESTERN EUROPE SHOWING DOGGER BANK AND HUNDRED FATHOM LINE

Brunswick In British waters the herring fishery starts between the Hebrides and the Shetlands during the spring of the year, and as the year advances the centre of activity moves farther south. The appearance of the shoals makes Peterhead, Aberdeen, Stonehaven, Dundee, Whitby, Grimsby, Yarmouth and Lowestoft each in turn the herring centre, and the herring season ends in October near the south of England. The herring fleets, and the Scots fisher lassies employed in cleaning and packing the fish, move southward from port to port as the shoals appear.

River fisheries yield important supplies of salmon, oysters, lobsters, crabs and other shellfish. Salmon is abundant in the rivers of British Columbia, Alaska, Scotland and Norway, at certain seasons of the year, and advantage has been taken of this to

develop a large trade in that fish. Colchester and Whitstable, in the Thames estuary, have become renowned for their oysters. Lobsters, crabs and other shellfish are caught off the southern coast of England and the eastern coast of Canada. An idea of the magnitude of this side of the fishing industry is shown by the fact that 30,000,000 lobsters is a normal catch for a year in eastern Canada.

Fish remain fresh only a few days after catching, and special methods must be adopted to ensure a supply of fresh fish to people living far distant from the fishing grounds. The fishing grounds are often a day's journey from the ports, and large towns are frequently many miles inland. Fish is usually packed in broken ice immediately it is caught, taken as quickly as possible to port, and then dispatched



BOYS DRYING CODFISH—GASPE COAST, QUEBEC

[Courtesy C.N.R.]

immediately by rail to the centre where it is required. Fish markets develop at the fishing ports, which must have good railway communication for the rapid transport of the fish. The large population of London is supplied mainly from Billingsgate market, which is situated on the banks of the Thames near London Bridge. Many fishing boats bring their catch, preserved in ice, direct to that market.

Other methods of preserving fish are by salting, drying, curing or canning. Smoked haddocks, and cured herrings, called bloaters and kippers, are to be seen in every fishmonger's shop. Salmon, lobsters, pilchards and sardines are usually canned, and can thus be kept fresh for an indefinite time. The adoption of scientific methods in developing trade is shown by the present large export of Newfoundland in frozen salmon. At first no means could be found of transporting the fish in an edible and marketable condition. A few years ago several Newfoundland firms experimented in freezing salmon in cold water. Several months after freezing it was found that the fish had still the appearance of freshly caught salmon and the same delicious flavour. As a result freezing plants have been established at St. John's, and thousands of salmon are frozen daily. The shipping companies by equipping their liners with refrigerating holds carry the fish to Europe, and a large export trade is being built up.

Much fish is exported from British ports to those countries of the continent of Europe which are unable to obtain adequate supplies by their own efforts. The importance of fish as a food in the Catholic countries of Europe has given rise to a large export trade of salted, dried or cured fish, and the large trade in fish at the ports has developed many industries other than fishing. Cleaning, salting, curing and preserving fish give employment to many people other than those actually engaged at sea. The making of boxes and barrels, the building of fishing boats, the making of nets and the preparation of important products from fish waste

all create additional employment and make the fishing ports busy industrial centres.

Fish waste and those varieties of fish that are not in demand for human consumption are used for the preparation of fish meal and other valuable by-products. Fish meal made from cod and other ground fish is an excellent food for cattle and poultry, and is extensively used for that purpose in Europe. Herring meal is seldom used as a food owing to its strong smell, but it is a valuable fertiliser. Fish oil and glue are important by-products. Cod-liver oil is probably the most important of the fish oils. It is extracted from the fresh and healthy livers of the fish by subjecting them to a gentle heat. When the oil is obtained it is exposed to a low temperature which solidifies much of the fatty matter, and that fat is then removed by filtration. Cod-liver oil is the most easily digested of all fats, possesses high nutritive qualities and has an important medicinal value.

The importance of the fishing industry in Canada and Newfoundland must be emphasised. The Atlantic fishing grounds, near the St. Lawrence mouth, are perhaps the most extensive in the world, and fishing was the first industry to be systematically prosecuted by Europeans. The early explorers soon found that cod was very plentiful, and it became a common practice for a crew to anchor in a bay, erect a hut on shore, and make daily excursions to the fishing grounds. Salted and dried cod was exported to Europe in those early days. Fish provided a much needed food supply for the first settlers in Canada, and, being easily obtained and plentiful, played a great part in the early history of the country. The present great fishing industry makes Eastern Canada hold a somewhat analogous position for fish to that of Western Canada for wheat.

CHILDREN'S STORY

In other lessons we have learnt that people who live near fresh or salt water often catch fish for their food. In some parts of the

British Empire, however, such large quantities of fish are caught that they can be sent to other parts of the world where fish is very scarce. The flesh of fish is always wholesome food, though some kinds of fish are more satisfying than others. What fish do you know? Can you pick out the silvery herrings in a fishmonger's shop? Do you know what cod is like, and salmon, plaice, haddock, mackerel, sole, skate and whiting? If you do not, ask your father or mother or your big sister to show them to you the next time you pass the shop. They have been brought to you through dangers by brave fishermen, whose work in the fishing fleets is rough and hard.

Fish do not care to live in very deep water, because they cannot find enough food there. They exist in great numbers in shallow waters, where they find tinier fish than themselves to eat: baby crabs, water snails, the soft parts of mussels and limpets, and seaweed. This food eaten by fish is called *plankton*. There are two great feeding places for fish in the British Empire. One is called the Dogger Bank in the North Sea, near the east coast of England, and the other, called the Grand Banks, lies off Newfoundland, near Canada. You can find these two places on the globe. Notice that the Grand Banks are a shallow part of the Atlantic Ocean. All kinds of fish are caught at these two places, but the biggest catch taken from both is *cod*, and off the east coast of Great Britain, from Peterhead, in Scotland, to Yarmouth and Lowestoft, in England, the biggest catch is *herring*.

Deep sea fishing in the North Sea is done mainly in three ways, by long lines, by drift nets, or by trawling. The boats that carry lines are called long liners, and they catch fish that can be hooked, such as cod, whiting and haddock. The long liners carry a great number of lines. At about every three yards a small line with a hook is fixed to the long line, and food or *bait* is placed on the hook. Sometimes 5,000 hooks float just above the sea bottom. The boats sail

around for three or four days, and then the lines, with the fish hanging from them, are drawn up.

Drift nets are huge, deep nets, held up to the surface of the sea by a row of large corks on the tops of the nets, while the bottoms are kept down by weights. These nets catch fish that swim near the top of the water. The ships drift along with the tide, and so are called drifters. Drifters are used chiefly in catching herrings.

The trawl net is an enormous bag with an overhanging top, which drags the fish down into the net as it is pulled along by the ship. These nets drag the sea bottom for plaice, sole and skate. Trawling is a wasteful way of fishing, because the trawl often catches thousands of young fish which are too small to be of any use for food.

Fishing boats are not very large vessels. They carry about a dozen men. Most of the fishing fleet are steamships and motorships, though there is also a number of sailing vessels. It is hard and heavy work dragging on board the nets laden with fish.

HERRINGS

In British waters the herring fishery begins early in spring off the east coast of Scotland. The herrings arrive in great masses, called *shoals*, to lay their eggs in the shallow water near the shore. The fishermen know that they have come by the flocks of gulls which follow the fish to feed on them. As soon as the news arrives that the herrings have come, all is hustle and stir. The fishing boats put out to sea, and preparations are made on shore to take in the catch. The drifters sail along with their great nets hanging like heavy lace curtains under the water. The herrings swim into the nets and their gills catch in the meshes. The gills are close to the heads of the fish, and by moving them backwards and forwards, the herrings are able to take in air and breathe under the sea. When their gills are caught, the fish die, because they cannot breathe.

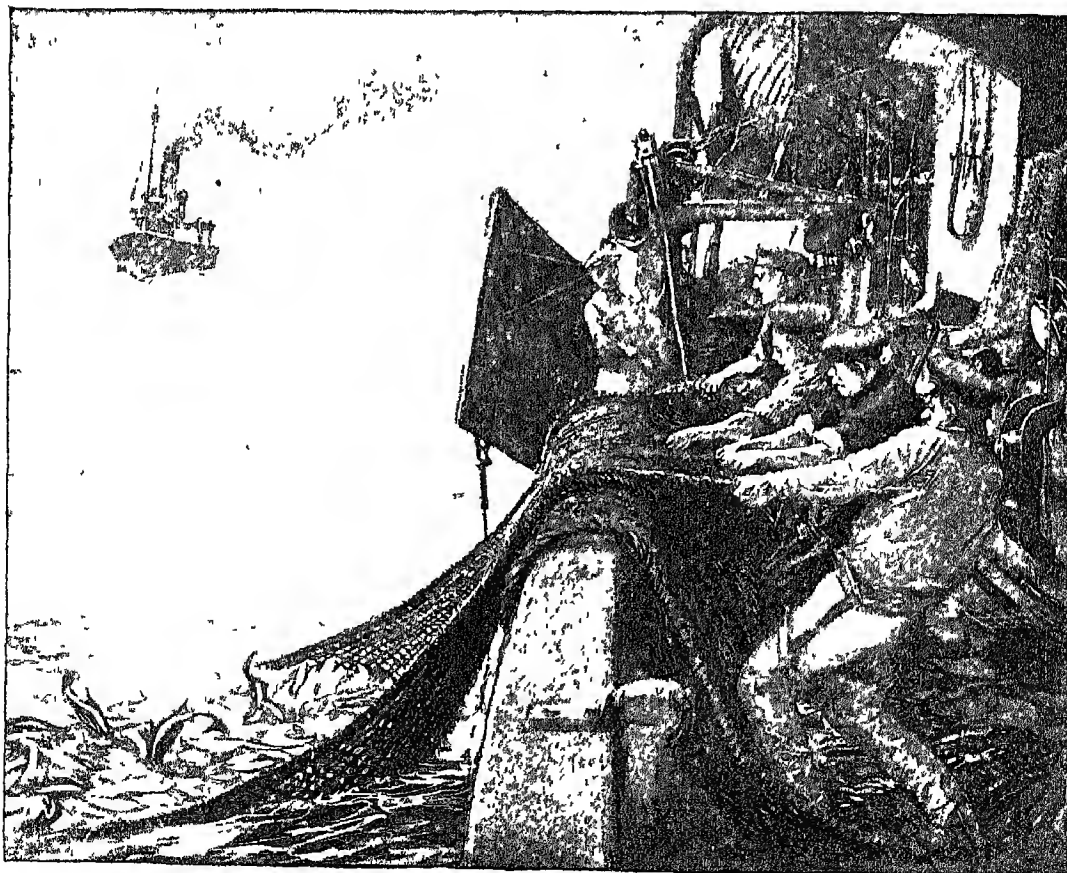
When the net is full, it is hauled on board ship, and the catch poured out on deck. Back in port, the fish are sorted and piled in heaps on the ground. The large fish are then cleaned by women, who work very quickly, and can clean sixteen in a minute! Salt is then thrown over the fish, and they are carefully packed in layers, with their heads to the sides of the barrels, and salt is also placed between each layer. One barrel of salt is used to *cure* or preserve three barrels of herrings. After the barrels have been nailed up eight or ten days, holes are bored in them, and the liquid is drained out. Then the barrels of salted herrings are sent away to other lands.

Millions of herrings, however, are still

left. Some are packed in ice and sent to market as fresh herrings. Others are threaded on sticks and placed over smoking fires which change them into kippers and bloaters. Others, again, are bottled, tinned, or made into bloater paste. In the meanwhile, more and more herrings appear, the shoals arriving each time farther south, so the fishing fleets and the fisherwomen follow the fish from one port to another.

COD

You can tell a cod fish in the shop by his very large mouth and the barbel, or tiny strip of flesh hanging like a beard from his chin. He is much larger than a herring, being two or three feet long, and some cod



HAULING IN THE TRAWL

as tall as a man have been caught. Fishing boats, called bankers (because they go to the Grand Banks), catch cod off the coast of Newfoundland. Nearly 100,000 men and boys work at the cod fishing, catching the fish chiefly by long lines.

The fish are cleaned as soon as they are caught, and packed in boxes to protect them from the sun and air. As soon as they have been brought ashore, the heads are cut off, and the fish brushed in fresh water and split open. They are then pickled in barrels as the herrings are, and two fish make a layer. Salt is placed between every layer. About half a pound of salt is used to every fish. Some of the catch is dried or smoked, and then boxes and barrels of cod fish are sent away to all parts of the world. Cod and herring share the first place in the list of wholesome food fishes. Not only is cod useful for its flesh, but also it gives us cod-liver oil, which is a splendid medicine for children or people in weak health.

SALMON

Most children see tins of salmon and enjoy the tasty red or pink flesh. Sometimes a whole salmon may be seen in a fishmonger's shop, its beautiful blue and silver spotted sides gleaming. The full-grown fish are often a good deal larger than cod, many being over five feet in length and fifty pounds in weight.

Unlike cod they are caught mostly at the mouths of rivers up which they swim to lay their eggs. Baby salmon are hatched far up the river, where the water is shallow and the bed sandy. Then when old enough they travel down the river to the sea, where they live for several years until they become full grown. In time they want to return to their first home and every August swim to the river mouths in thousands and thousands. This wonderful sight is to be seen chiefly on the west coast of Canada and Alaska. Nets in the form of huge traps are set to catch the fish. Then men go out in boats called scows

and with the aid of machinery scoop up the salmon. The fish are also caught in Britain, chiefly in the Scottish rivers and lochs and in the rivers Severn and Wye.

In the fish shop you will sometimes see shellfish as well as ordinary fish. The most important shellfish is the lobster, which is caught off the south coast of England, and off the east coast of Canada. The lobsters caught in Canada are chiefly canned, though nowadays men have learnt to pack fish so cleverly in ice that it will often travel hundreds of miles in as good and fresh condition as it was caught. Many ships are now built with freezing rooms in them, where meat and fish will remain good for a very long time.

Though so much fish is caught in these parts of the British Empire, we must remember that in many other places men and women know nothing of the sea, and have never seen a fishmonger's shop. Those people who are able to get fresh fish are very fortunate, and should buy it, if only to show their gratitude to the brave fishermen who sail in all weathers over the dangerous seas.

TEACHING HINTS

1. Fishing industry.—To make the fishing industry a success, there are three chief requirements.

1. Easy access to water containing an abundance of fish.
2. Possession of boats, nets and other implements.
3. Brave and skilful men.

2. Fish.—Tabulate a list of fish and classify as flat or round: e.g.

- flat fish—plaice, sole, skate
- round fish—cod, haddock.

The children might with advantage collect labelled pictures of these. Make a list of prepared fish seen in shops—smoked, dried, tinned or otherwise preserved.

3. Grand Banks of Newfoundland.—This is a submarine plateau of about 500,000 square miles in area, with a depth of from 60 to 1,000 feet. Minor shallows, such as St. Pierre, Ballard and Greenbank, occur in the same region. The banks swarm with cod fish, and Canadian, American, British and French fishermen visit the area regularly.

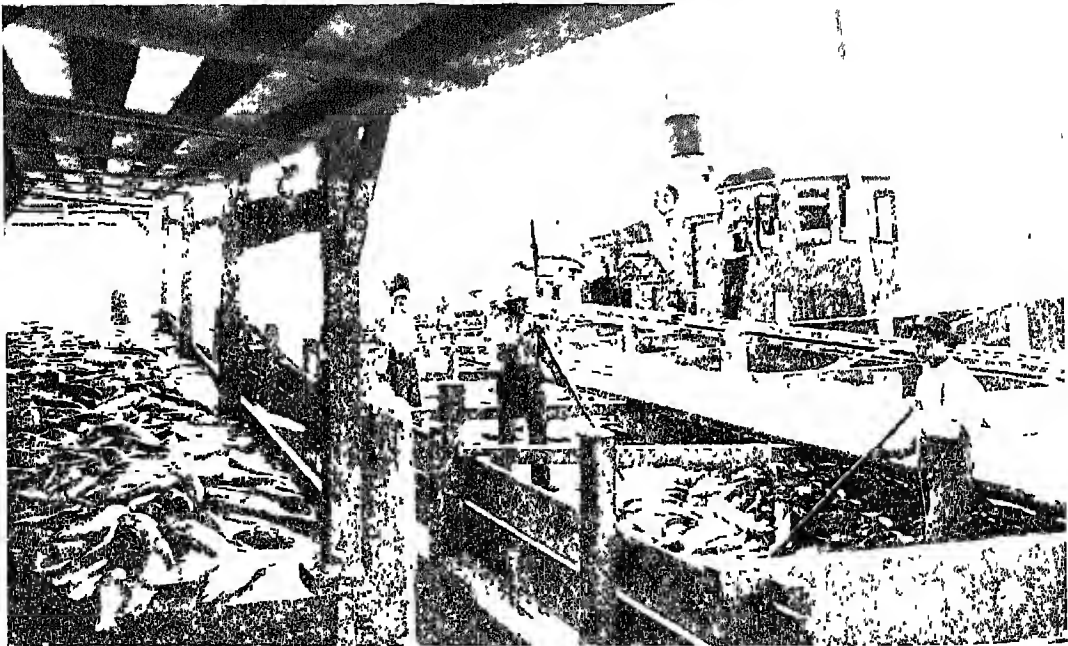
4. Dogger Bank.—This is a sand bank occupying a position about midway between Yorkshire and Denmark. The average depth is from 60 to 120 feet. The northern part is known as the Great Fisher Bank. Depressions near the sides are called Pits, such as Silver Pit and Sole Pit. It is a famous fishing ground, especially for cod.

5. Plankton.—This term includes both the small animals which live near the ocean bottom in shallow water and cannot swim against the ocean currents but drift passively

with them, and also many plants of simple structure. The plankton animals are usually transparent and of delicate structure, and occur in enormous shoals. Together with the plants, they form the chief food supply of fish.

6. Herring.—This fish is of the same family as the sprat and pilchard. The herring schools swim near the surface of the sea, and constantly move from place to place, following their food. They are found in the North Atlantic, but not in the Mediterranean. The average number of eggs laid by the female is 30,000. These hatch in about a month, and the young fish take from two to three years to become adult.

7. Cod.—Cod is of the same family as haddock, whiting, ling and hake. Its colour and markings vary considerably, and appear to accord with the features of the sea bottom from which the specimens are taken. The



(By courtesy of Canadian Pacific Railway)

UNLOADING SALMON FROM SCOWS, WESTMINSTER, B C

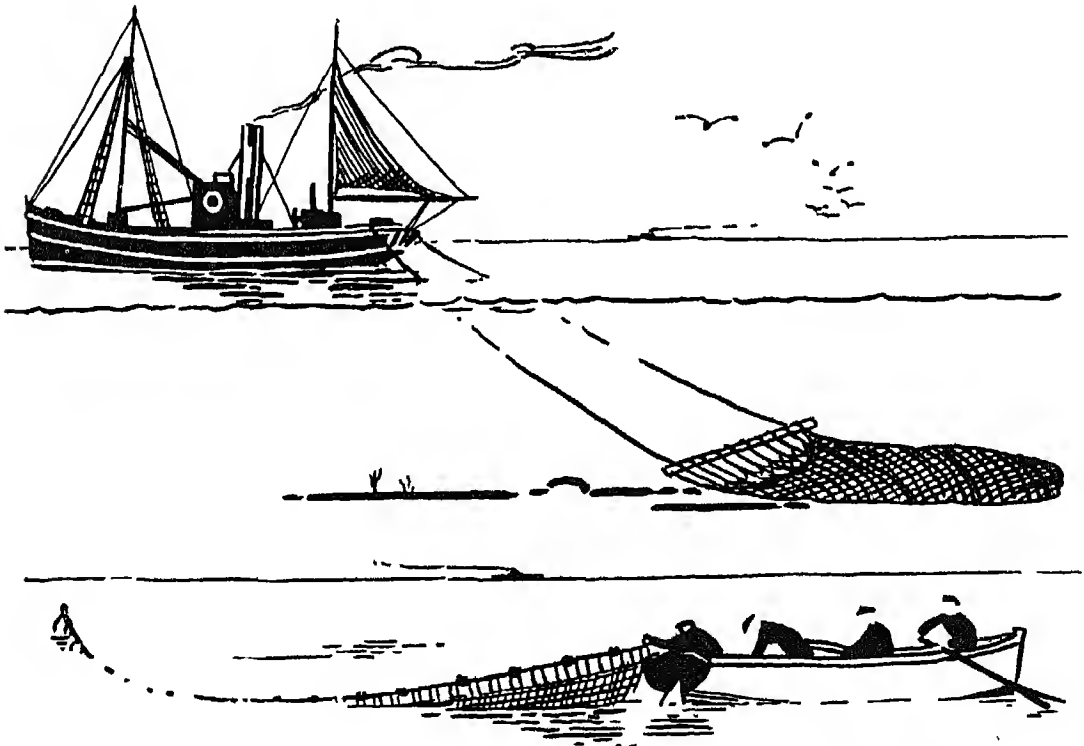
female lays from three million to nine million eggs a season, but few grow into adult fish. In March, the sea is often clouded with dense layers of these floating eggs. The fish mature at the age of four years when they should be two feet long. Isinglass is obtained from the swimming-bladder of the cod. The heads and offal are dried and used as food for cattle and as land manure. The fishery fluctuates from year to year, but in Great Britain alone 96,000 tons of cod have been landed in a year, representing over £1,000,000.

8. Memory work.—(a) Fish is very good food. (b) Herrings and cod are placed together first on the list. (c) Fishermen

are very brave and skilful. (d) The Dogger Bank is near England and the Grand Banks are near Newfoundland. (e) Fish are caught by long lines, and in drift nets and trawl nets. (f) Cod-liver oil builds up the body.

9. Exercises.—(a) What fish have you seen in the fishmonger's shop? (b) What fish are caught off the Grand Banks? (c) Where is the Dogger Bank? (d) How are herrings caught? (e) What work is done by the fisherwomen? (f) What do we call smoked herrings? (g) How can you tell a cod? (h) What medicine is obtained from cod? (i) What is done with lobsters in Canada? (j) Why ought we to buy fish?

SKETCHES FOR THE BLACKBOARD

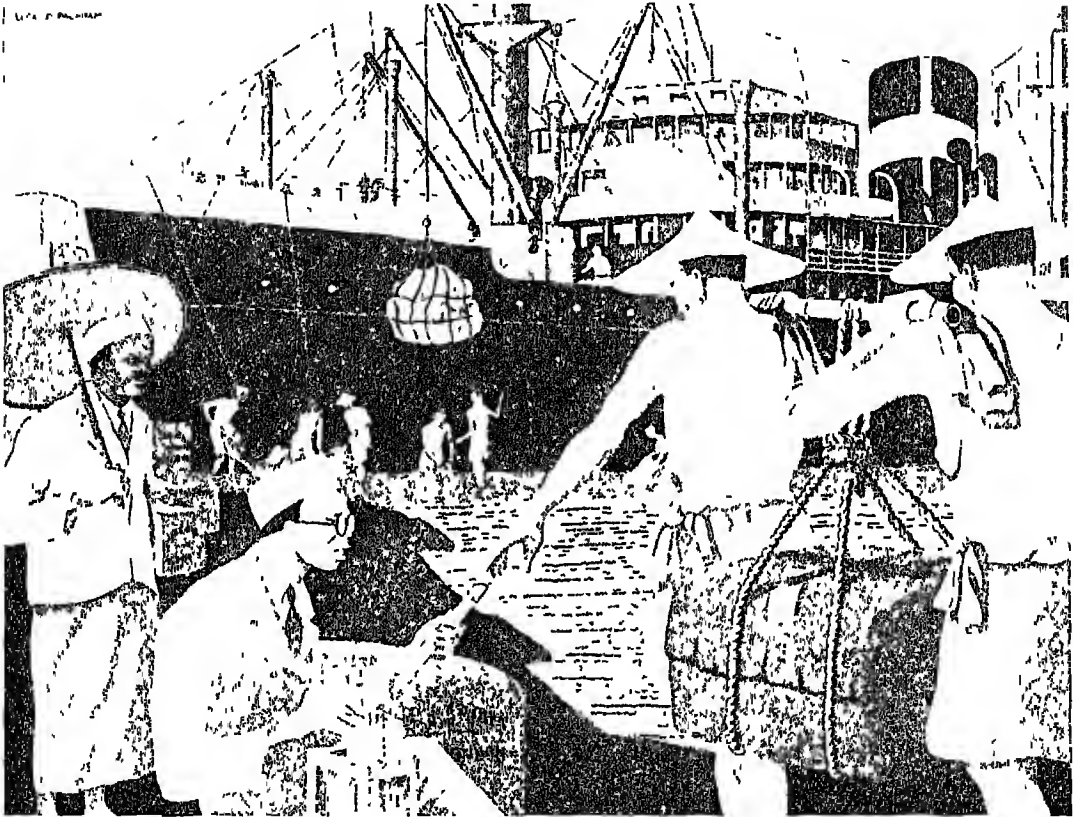


STEAM TRAWL

DRIFT NET

XII. MERCHANT SHIPS

PICTURE REFERENCE



AN EASTERN SEAPORT

(Class Picture No 74 in the portfolio)

THE Class Picture shows a dock scene at Penang in Malaya. It is in the region of hot wet forests and the people are chiefly Malays, Chinese and Tamils from India. The liner in the background has discharged her passengers and goods and is loading rubber, copra, coir and spices. In the front of the picture Chinese porters are bearing a heavy package slung on a bamboo pole, their shady hats and little clothing

suggesting the great heat of the region. A Chinese clerk checks each bale as it goes to the ship, and nearby is a Malay merchant carrying a sunshade and wearing the customary white jacket and sarong. Notice the derrick by which the bales are slung over the ship's side and into the hold. When all is aboard and the passengers have arrived the liner will begin her long journey over the ocean.

INTRODUCTION

Routes which traverse only the territory of the British Empire and the sea routes which can be navigated by calling at Empire ports only are known as "All-Red Routes" on account of the colour chosen to mark them on most maps. In order to understand clearly how a very considerable part of the material of the world can be carried along all-red routes it is necessary to realise the great extent of the Empire. The whole of Australasia, with the exception of a few islands in the South Pacific, is a member. In Asia, India, Malaya, Aden and Hong Kong share in it and so does a very large part of Africa, including the Anglo-Egyptian Sudan, the Gulf of Guinea territories, Kenya, Uganda, Rhodesia, and the whole of South Africa. The northern half of North America (except Alaska) forms the Dominion of Canada. Gibraltar, Malta and Cyprus are notable dependencies in Europe, and in South America are British Guiana, many of the West Indian Islands and a large number of useful islands in each of the oceans. Thus, member countries and islands of the Empire are found in each of the land masses, and in cold, cool, warm and hot parts of the globe. In whichever direction we travel from home we can soon get into touch with Empire land, and we can obtain the produce resulting from every possible type of climate.

The oceans are the connecting link of the widely scattered Empire and they form one continuous stretch of water on the globe. A large number of fine ports have been created on the British coasts, and Britain has developed a great manufacturing industry providing abundant material for export.

One special requisite is necessary before ships can make their long journeys, and the world's material can be carried along the routes. Ships consume a tremendous amount of coal or oil. In order to economise space and provide the greatest accommodation for cargo and passengers, it is advisable to carry only the smallest possible

amount of "bunker" coal. To achieve this end, fuelling stations have been established at frequent intervals along each of the great routes, where ships can quickly fill their bunkers and tanks.

Gibraltar is at the narrow entrance to the Mediterranean Sea and must be passed by all ships entering or leaving that sea. Malta is the halfway house between Gibraltar and the Suez Canal. Suez and Port Said are at the entrances to the Suez Canal, and Aden commands the entrance to the Red Sea. Similarly, as the ocean highways are studied, it will be found that fuelling stations can conveniently be established in British territory at the best points on all the routes. Unfortunately most of the best sites are without coal of their own and they rarely have coal fields near them. They are stocked, usually, with coal from the British coal field in South Wales, which possesses large quantities of hard steam coal. Tramp steamers carry the coal as far east as Singapore and return home with whatever cargo they can obtain. The Australian coal field in New South Wales exports coal to many coaling stations in the southern hemisphere.

The steamers of the ocean fall into two distinct classes—the tramps and the liners. The tramps are built wholly for cargo, and the liners mainly for passengers. The bulk of the world's material is carried on tramps, which are ready to go to any port where a cargo can be obtained. The liners are the largest, fastest and most luxurious vessels on the seas. They cater for passengers chiefly, but cargo is also carried.

A large number of ships engaged in commerce make very short journeys, travelling only along the coast of a country, or from one land to a near neighbour. These are called coasters, and in the island groups of the world they are of the greatest importance. They gather the produce of the small islands and take it to a convenient point that can be developed as a port for the ocean traders. The number of sailing ships on the ocean to-day is very small.

CHILDREN'S STORY

We have learnt now of the many wonderful crops grown in the Commonwealth and other parts of the Empire to provide food, drink and articles of everyday use for us. What should we do without them? Supposing we could get no tea, coffee or cocoa; no wheat for bread, no beef or mutton for dinner; no wool or cotton for clothing, no wood for our houses; no oranges, grapes, currants or raisins! We should be without protection from rain and cold, without sufficient food, and we should soon die. We have to thank all the varied peoples in our Empire for the good things they grow for us, we have to thank the brave white men and women who venture into dangerous, unhealthy lands to sell our own goods and seek others in return; and we have to thank the captains and crews of the ships that sail backwards and forwards over the wide seas, bringing us and the rest of the world in touch with each other, and making one great Empire out of many separate parts.

Now supposing there was no tea at home and mother could not wait for her new supply, what would she do? She would say, "Edith, will you run along to the grocer and ask him if you may have our tea?" So Edith would fetch the tea for her mother. How does the grocer get it? It is brought to him in a motor van belonging to a firm that sells tea to thousands of grocers' shops in many towns. Or it may come to the railway station, from where he would fetch it in his own van. How do the large firms of tea merchants obtain it? They have to send lorries to the great docks of one of our seaports. The steamships have brought the boxes of tea over the ocean and unloaded them at the docks of a British port.

Standing in the docks are large warehouses, in which the tea chests are stored as soon as they arrive. Merchants come to these warehouses to buy as much tea as they want, and then send it away on their vans to the grocers' shops where mother is able to make her purchases.

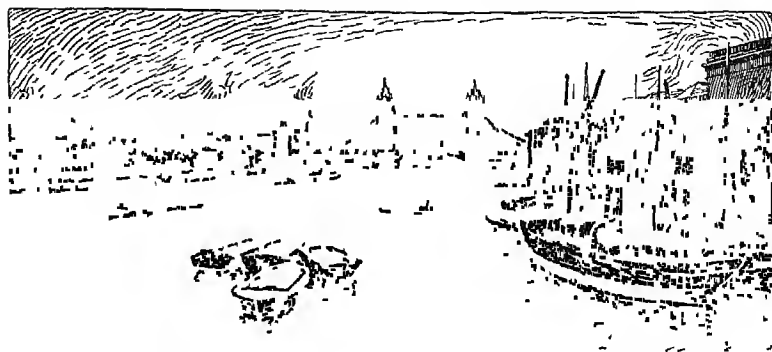
There are three very large ports in England where the big ships call regularly and unload their cargoes. These are London, Liverpool and Southampton. London is the largest of all. It is the greatest port in the world. The London docks stretch for miles along by the river Thames, and in the warehouses at the back of the docks almost everything you can think of is stored neatly away, ready for sale when the merchants require it. There are great rooms full of coffee. Other rooms are stacked high with bales of camels' hair and sheep's wool. There is a warehouse for sugar, another for rubber, another for fruits of every kind, another for wheat, and so on. Underneath the warehouses run enormous cellars or vaults, where great casks of wine from Cyprus, South Africa and Australia are stored. The cellars are dark and cool, and fat spiders spin their cobwebs over the wine barrels. All great ports must have warehouses. In Liverpool, many of the warehouses are full of bales of cotton.

You know that if you want sugar, you must go to the grocer's shop for it. If you want a reel of cotton, you must go to the draper's shop. In the towns, however, there is generally one district which contains stalls selling all sorts of goods, side by side. You have only to take three steps from the grocery to be at the drapery stall, and three more to the meat or china or fruit stall, and so on. A place where all kinds of goods are brought to be sold is called a market. In the country, farmers take their home-made butter to the market for sale, or send their sheep and cows. All people who make or grow things to sell can take them along to the market. There they sell them to people who cannot make or grow these things themselves. We call London the market of the world. Every land in the Empire sends goods to the market of London, and the merchants who come to buy them speak not only in English, but also in many strange tongues unknown to most Englishmen.

How do all the Empire's cargoes arrive safely in London? Well, supposing you lived in the country and wished to visit your aunt in the town, you would have to walk to the railway station and take a train. Or you might catch a 'bus going that way. The 'bus and train will both go

in the same direction, along special roads which lead from the country into the town. London, Liverpool and Southampton have many roads leading to them, but they are not all land roads. Some of them are water roads. Steamships carrying cargoes to London have to find their way over the great seas, and the captains know their road as surely as the 'bus driver or the engine driver knows his.

There are very few sailing ships to-day on the ocean. Most vessels which go on long journeys no longer depend on the wind, but are driven by engines which use either coal or oil fuel. The ships fall chiefly into three classes. There are *coasters*, which make only short journeys along the coasts of different countries, sailing from one port to another. These are very useful in the sunny islands, because they collect the copra, coir and sugar from the islands, and take them to one central port where the large steamships call. The coasters also carry cotton goods and tinned foods to the people of the islands. There are also *tramp* steamers. These are built specially for cargo, and most of the world's produce is carried by them over the ocean. They go to any port where a cargo can be obtained. The third kind of steamship is the *liner*. They are the largest, fastest and most comfortable vessels on the seas, and carry both passengers and cargo. The ship in the picture is a liner which has called at Penang in Malaya, for passengers and goods. It is collecting a cargo of rubber, copra, coir and tin

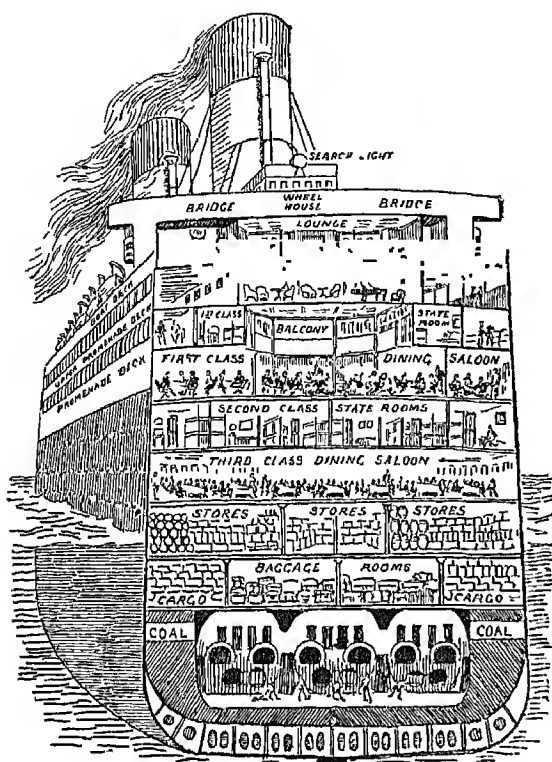


THE THAMES, SHOWING THE TOWER BRIDGE IN THE DISTANCE

How will the captain of the liner find his way back to London? Do you remember the caravans in the desert? They travel from oasis to oasis, and find their way over that sandy sea by the stars. The captain of this liner carries a wonderful instrument called a compass, whose needle, which resembles the hand of a clock, always points to the north. By this he steers his way over the deep. On his road home he will call at Ceylon for tea and more copra, at a town in India for rice, cotton and tea, and at Cyprus for locust beans, raisins, currants and fruit.

A modern liner has been called a floating palace. The cabins are beautifully furnished, the decks are wide enough for a game of tennis and there is a swimming bath on board. The *Cunard* was the first line of steamers founded to sail across the Atlantic Ocean, but now there are many famous lines. Some of the crews of the large liners number over eight hundred, and the ships have seven, eight or nine decks.

Such enormous vessels use up a tremendous supply of fuel on their long voyages. They cannot carry enough to last them the whole way, so they stop at certain places on their routes to take in more. These are called fuelling stations. Special ships carry great cargoes of coal or oil to the stations, so that there is always plenty to be had. The coal used is taken chiefly from Wales, and is called hard steam coal. It burns with very little smoke. Australia sends coal to the



SECTION OF A LINER

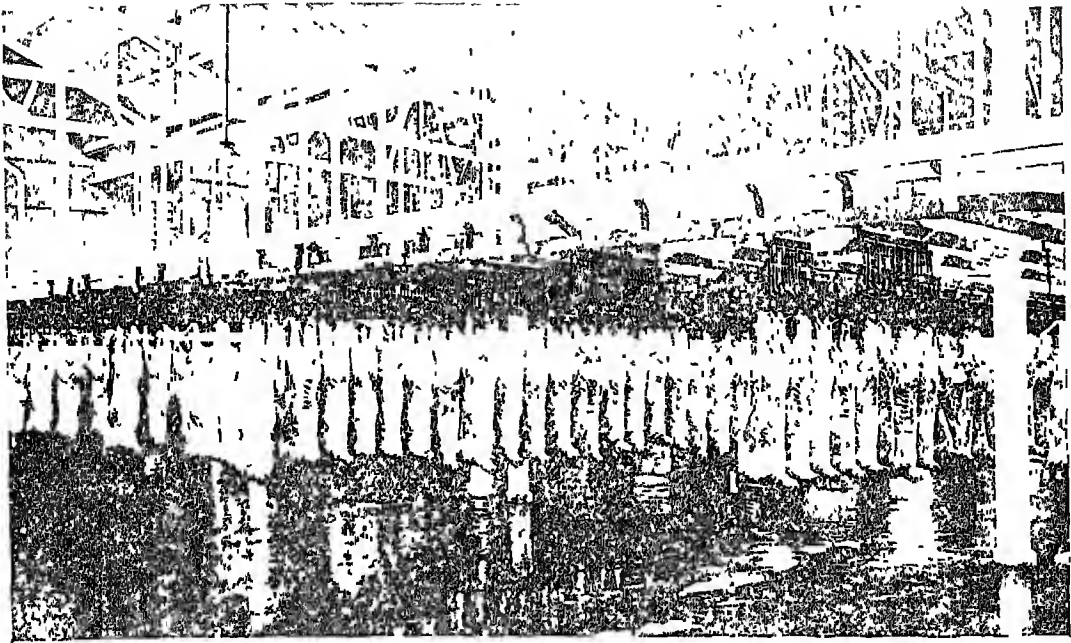
fuelling stations south of the equator. Besides fuel, the stations have shipyards, where ships can be repaired if they have been damaged by heavy seas or fierce gales. At all dangerous parts of the coast brave men are on duty in lonely lighthouses, which flash warning signals to ships coming in too near to the rocks.

What cargoes, then, do the tramps and liners carry over the seas? The British Empire stretches from pole to pole. As the earth moves round, there is always some land in the Empire turning towards the sun. When the countries north of the equator have had their summer, the warm season begins anew in the countries to the south, so that there are always two harvests to come in every year. Thus the cargoes carried by British ships include almost everything in the world. From Canada in the west

come stores of wheat, fish, furs and timber. Ships sail away from Liverpool, cross the Atlantic Ocean in a week, and unload at the Canadian port of Halifax their cotton and woollen goods, their ploughs, motor tractors and lorries made in England and needed in the wheat fields of Canada. Then they take in a new cargo of Canadian goods at Halifax, and away home they come again, to stack the warehouses of Liverpool or London with fresh supplies of furs and canned fish and meat, which are very quickly swallowed up by the English markets. Other ships sail away to Australia and New Zealand. Six weeks the voyage takes them. They carry out manufactured goods—clothes and machinery—just as they do to Canada, for British manufactured goods are wanted everywhere. They return from Australia and New Zealand with supplies of wool, chilled meat (Canterbury lamb) and fruits, both canned and fresh. Other ships again go to the East, to Singapore and Penang, and gather up stores of tea, rice, rubber and copra, as we have already seen from the picture.

Now turn to the globe, and follow with your finger the busiest sea road in the world. It is one of the British Empire roads. Find *London* first, and travel south to *Gibraltar*, the first fuelling station. Go through the straits of Gibraltar eastwards to *Malta*, the second fuelling station. Leaving Cyprus to the east, run your finger down the Red Sea to *Aden*, and eastwards again over the water to *Bombay* in India. From Bombay move southwards to *Colombo* in Ceylon, and from Colombo to *Penang*. The steamship in the picture followed this course, a distance of over 9,000 miles, and now you know where she may call on her way back to London. The seas do not separate, they join all the different lands of the Empire, and on these great free highways British ships move to and fro—

"Swift shuttles of an Empire's loom that weave us, main to main"



(Courtesy High Commissioner for New Zealand)

MEAT IN COLD STORE—NEW ZEALAND

TEACHING HINTS

1. Seaports.—In all great ports, the pathway of ships to the port in the shallow waters is clearly marked. Lighthouses, lightships and buoys are all there. The port itself is furnished with docks, warehouses, cranes, engineering shops, coal, telegraph apparatus, and other necessities for the equipment of a ship and the distribution of its cargo.

2. The Empire.—The sun never sets on the Empire. Noon travels westwards on the earth's surface, moving over 15° of longitude each hour. Thus when it is noon at Greenwich it is 2 p.m. at Durban, 6 p.m. at Calcutta, 8 p.m. near Albany in Australia and about 10 p.m. at Melbourne. At the same time it is 8 a.m. in British Guiana, 6 a.m. at the western end of Lake Superior in Canada, 4 a.m. in the West of British Columbia and midnight in the Fiji Islands. Yet the great extent of the Empire from east to west is

perhaps of minor importance compared with its extent from north to south. The great range of latitude over which it extends means that every variety of climate and production can be found. The following gives some idea of distances:

Southampton to Melbourne via	
Suez—	12,560 miles
Southampton to Melbourne via	
Cape of Good Hope—	13,610 "
Southampton to Cape Town—	6,900 "
Liverpool to Montreal—	3,420 "
Vancouver to Sidney— . .	7,900 "
Australia to New Zealand— .	1,420 "
Southampton to Bombay— .	7,030 "
Southampton to Singapore— .	9,350 "
Southampton to Gibraltar— .	1,320 "

A fast boat travels about twenty miles an hour, and it takes about forty days to reach Melbourne, and twenty days for the journey to Bombay.

3. Sailing ships.—The path of a sailing ship is longer than that of a steamer travelling between the same two ports, but it is the path taking the least time possible for the sailing ship. The trade winds of the tropics, the westerly winds of the temperate zone, and the monsoon winds of the Indian Ocean are of great advantage to sailing ships. The outward and homeward journeys cannot be the same. The winds which would help on the way out would be against the ship on the homeward journey. The steamer takes the same path on each journey. A sailing ship in travelling from London to Cape Town would cross the Atlantic to the coast of Brazil, and then, when well south, would cross again to Africa. On the return journey it would cross the Atlantic from Africa to near the West Indies, and then, when well north, would cross again to England.

4. Penang.—One of the Straits Settlements. It is traversed by the main western railway of Malaya from Singapore to Siam, and a branch goes to Prai, whence steam ferries make connexion with Georgetown.

The town, which is built on a promontory nearest the mainland, is largely occupied by Chinese and Tamils, though the Malays are also well represented. Behind the town, on Penang hill, are built several government buildings, private bungalows and an hotel. There are European clubs, a racecourse and golf links. Coconuts are grown along the seashore and rice is cultivated in the interior at Balek Pulau. The official name of the island is Prince of Wales island and that of the town Georgetown. Penang has an excellent harbour but its trade is eclipsed by the proximity of Singapore.

5. Malta.—This is an important naval base and coaling station with an extensive dockyard and arsenal. During the two World Wars it was a noted allied base, and in the second one heroically resisted devastating attacks by enemy aircraft.

The island is an irregular oval in shape

about $17\frac{1}{2}$ miles long by $8\frac{1}{2}$ broad, with an area of less than 100 square miles, and a population of 225,000. The surface is a succession of hills and valleys, the coast line is deeply indented and the notable double bay of the island is formed by the promontory on which stands Valetta, the capital. The inhabitants are mainly concerned with agriculture and fishing. Malta is specially noted for its honey and lace. The principal resources of the people are derived from its being an important military station and the headquarters of the Mediterranean fleet. Malta is a self-governing dominion. Most of the people speak English and Italian, while their own language is a mixture of Arabic and Italian. The educational system of the island is highly efficient, three languages are taught in the schools and there is a university and several secondary and technical schools. (An outline of the fascinating history of Malta is given in Volume VI.)

6. Memory work.—(a) We depend on other lands for meat, bread, fruit, tea and clothing. (b) London is the world's greatest market. (c) Tramp steamers carry cargoes. (d) The captain finds his way with the help of the compass. (e) Coaling stations supply steamers with coal. (f) Steamers use smokeless coal. (g) The sun never sets on the Empire.

7. Exercises.—(a) What is done with cargoes unloaded at the docks? (b) Name three great ports in England. (c) What is kept in the vaults under London docks? (d) What is the chief cargo taken to Liverpool? (e) What have you seen at a market? (f) What kind of steamers visit the sunny islands? (g) What cargoes do steamers bring from the Far East? (h) What cargoes are sent from Canada to London? (i) What cargoes are sent from Australia and New Zealand to London? (j) Of what great use is Malta to the Empire? (k) What cargoes are sent out from England to other lands? (l) How quickly could you sail to India, and to Australia?



THE NELSON MONUMENT, TRAFALGAR SQUARE—LONDON

Donata McLeish

HANDWORK FOR THE GEOGRAPHY LESSONS

THE COLD LANDS

This lesson deals with the inhabitants of the cold lands of the Empire and the general life of the Eskimos and the Lumbermen of the Canadian forests. The latter will be dealt with more fully in Volume II, where the teacher will find additional exercises worked out.

The children will have had described to them the expansive forests of Canada, and already know something about the timber that is sent from this dominion. In dealing with the work of the lumbermen, the question of transport will arise. Although motor tractors are extensively used, and in places where a river is available huge timber rafts are utilised, in British Columbia the horse-drawn wagon is common. Our first exercise is the construction of a simple model of a lumber wagon. For this model two empty match boxes, a strip of card from an old box and a bottle cork are required. Fig 1 A shows how the strip of card is cut to the width of the match boxes. The cardboard is stuck upon the boxes to form the top of the wagon. If diagonals be drawn, as shown by the dotted lines, the centres of the sides of the boxes may be found. Small holes are made, and pieces of kindergarten stick are thrust through these to form axles for the cardboard wheels. Next, in grey wool, the girls should crochet four "chains" which are fixed to the wagon as shown, these are for fastening the load of logs to be added when the wagon is complete.

Our next task is to fit the movable shaft. The cork is cut to such a height that it will fit comfortably within the match box, the

shaft and crosspiece (joined with a small paper fastener) are strips of thin cardboard (double for the shaft) glued to the top and bottom of the cork (Fig. 1 B). When this is completed, it is placed inside the match box and fixed at the top and bottom with drawing pins (Fig 1 C). All that now remains to be done is to add the wheels and prepare a "load" of tree trunks in clay or plasticine. The "load" is secured by the wool chains (Fig 1 D). The match boxes may be covered with white or tinted paper and painted brown.

Our next modelling exercise is the making of an Eskimo fishing canoe or *kayak* in clay or plasticine. A cigar-shaped mass is rolled between the palms of the hands (Fig 2 A). This is flattened on one side by pressing it gently down on the modelling board (Fig. 2 B). A hole is made into the mass at one end, and around this a narrow collar is fixed. To complete the model, a tiny figure of an Eskimo, provided with a paddle (a splint of wood with a paper end) is seated within it.

The land of the Eskimo is also the land of the polar bear. An attractive scene is shown in Fig. 3 B. A large drawing is given of the bear (Fig. 3 A). This should be traced on to cardboard, coloured a creamy-white, and cut out. On a piece of card masses of clay are fixed, and into one of these the bear is placed. A stick of chalk is scraped to provide "snow" to cover the base, or flour or salt may be used instead of chalk. A background coloured with pastels or paints in bluish green or white should be added to complete the scene.

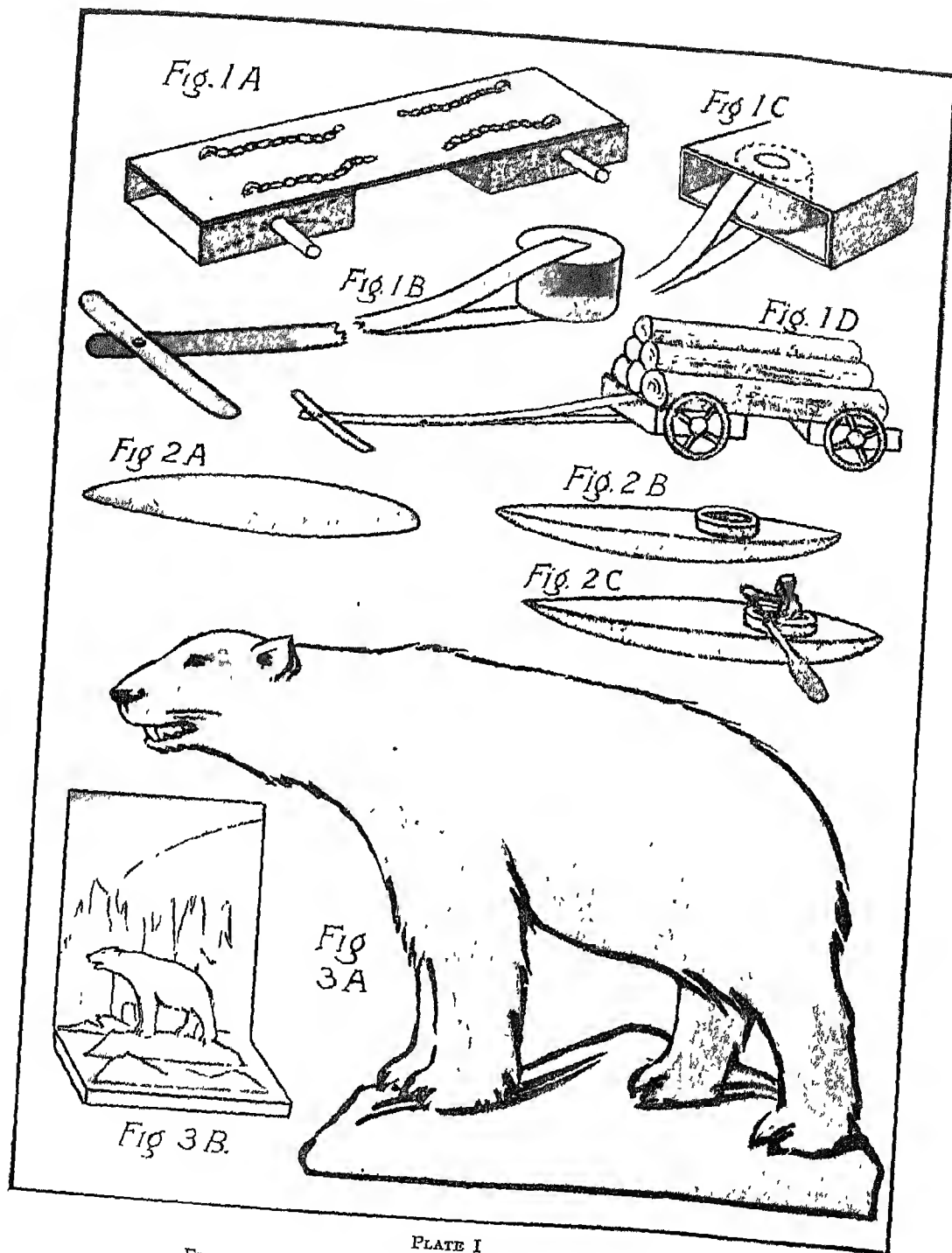


PLATE I

- FIG 1 CANADIAN LUMBER WAGON MADE IN CARDBOARD
 FIG 2 PLASTIC MODEL OF AN ESKIMO KAYAK
 FIG 3 POLAR BEAR FOR A PAPER CUT-OUT

COOL GRASSLANDS

In this lesson we deal with cattle and sheep in Australia. Country children, particularly those in the north of England, are quite familiar with sheep farms, and to all children the sheep is a common English animal.

We have purposely made our handwork on this plate of a co-operative or group nature, an exercise in which practically the whole of the class may join. Each member makes one or more components, which, when assembled, form a large model of an Australian sheep run. Handwork of this type is particularly valuable in the classroom, for the young children learn in a practical manner the virtue of the precept, "Each for all and all for each."

The model consists of a large sheet of cardboard surrounded by fencing, so that a number of fence units will be required. These are made of stout paper or thin card (Fig. 1 A) from a rectangle 8 in. \times 2½ in. The ends are cut as shown, so making the fence unit 7 in. long, and the base flaps 8 in. long. The inner portion is removed, thus leaving a ½ in. frame. The younger children might leave the fence units in one piece without cutting out the middle portions. The children will have heard that miles of steel wire are required on a sheep run for providing fencing. The "wire" for our fences is made by black cotton threaded with a needle across the frame in the manner

shown. The flaps are turned up horizontally, alternately left and right.

Some gates will be necessary. Fig. 1 B shows how the posts for these gates may be fitted at the end of a fence unit. A piece of a meat skewer is cut a little higher than the fence itself. Under the end flap, a drawing pin is thrust with its point upward, and on to this the wood is pressed until it is firmly held by the pin. The gate (Fig. 1 C) is a simple matter, for it consists of a narrow frame of card, over which strips are pasted to form bars. The gate is fixed to the posts by means of small loops of very thin wire.

Fairly large sketches are given of the sheep, which should be traced and hectographed for the children to use. It will be noticed that sheep standing in two positions are reproduced, but the teacher may provide the children with four types in the following manner. After having traced the sheep, hold the sketches up to the light and draw on the back of the paper, so giving the reversed position. Masses of bushes may be stuck to the base to relieve the monotony of the flat surface (Fig. 3), also, one or two simple houses can be made by fixing card around boxes in the manner of the Lake-Dwelling in Lesson VI of the history section (but without the piles). The completed model (Fig. 4) should now be sprinkled liberally with green chalk or pastel dust, and provided with a simple background.

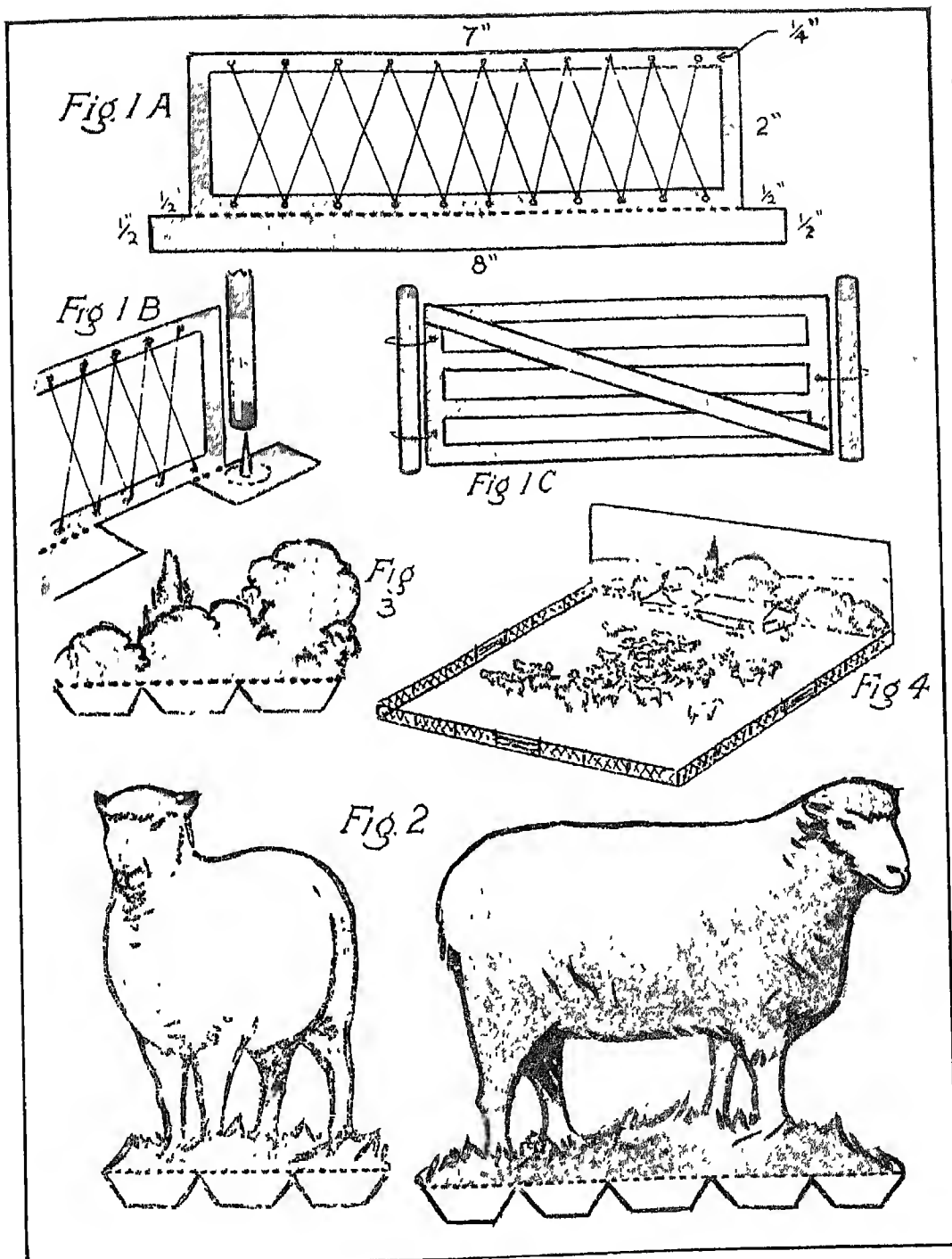


PLATE II

AN AUSTRALIAN SHEEP FARM WORKED AS A COMMUNITY MODEL BY THE WHOLE CLASS

COOL LANDS—INDUSTRIAL REGIONS

This lesson leaves the more picturesque spots of the Empire, and deals with some of the manufacturing and mining centres in England.

The first model is that of a simple working crane. Children will realise that heavy goods made of iron and steel can only be lifted by some mechanical means. Fig 1 A shows how a cotton reel is used to form the base of the crane. A meat skewer is thrust into the reel so as to project far enough to pass right through an ordinary match box. This match box is prepared in the manner shown in Fig 1 B. Two holes are made to receive the projecting meat skewer and a paper gable roof is fixed to the top of the box, the sides of which may also be covered with paper. A wire handle is bent as shown in Fig 1 C, and it is thrust through the two sides of the box near the bottom, and at a point a little to the side of the box, so that the skewer is untouched. A little thought and manipulation are required for the fixing of the thread. The problem of fixing should be discussed by the children. The bottom of the match box is first cut on two sides and bent back so that the wire handle inside is accessible from the bottom. By means of a needle a long thread is put through a hole in the edge of the box as shown, and it is wrapped two or three times round the wire handle within the box. The box is inverted, and a blob of sealing wax is dropped on to the strands of thread to fix them securely on to the handle. Now the bottom of the box is replaced and fixed by strips of paper pasted round its edges. The box is placed over the skewer, and it is pasted to the lid of a cardboard box to make it secure, as the model is "top heavy." To complete

the crane, a strip of thin card is bent as shown in Fig. 1 D and glued to the box. A short length of match stick is fitted at the end to form a runner for the thread. At the end of the thread a plasticine ball and a thin wire hook are fixed (Fig. 1 E). The hook can be moved up and down by turning the handle of the crane.

The second model illustrated is another form of crane constructed in a similar fashion from a gas mantle box, a bobbin and a meat skewer. The planning of the arm of the crane (Fig. 2 A) is rather more difficult than the first, and is suitable only for the better craftsmen. It is folded and provided with the necessary holes (Fig 2 B) for the skewer to pass through, and two match sticks form the runners. The fixing of the thread is a simpler operation here, because the lids of the box may be removed. A wire handle is fixed as before, and the base of the arm is glued to the top lid. The completed model is shown in Fig. 2 C.

A railway coal truck is simply constructed by pasting stout carton paper round a Swan Vesta match box, cut as shown in Fig. 3 A. Cardboard and stick axles are added beneath, and finally disc card wheels, which are shaped for cutting by using a penny. When complete, the two middle portions of the sides are cut down, removed, provided with paper hinges, and then replaced so that they will form flaps (Fig 3 B). Tiny pieces of card, bent at right angles, are used to keep the flaps in position; paper fasteners form "buffers"; a wire hook is fixed at the back and front, and a load of coal completes the model. Crayons can be used for colouring the sides brown and black.

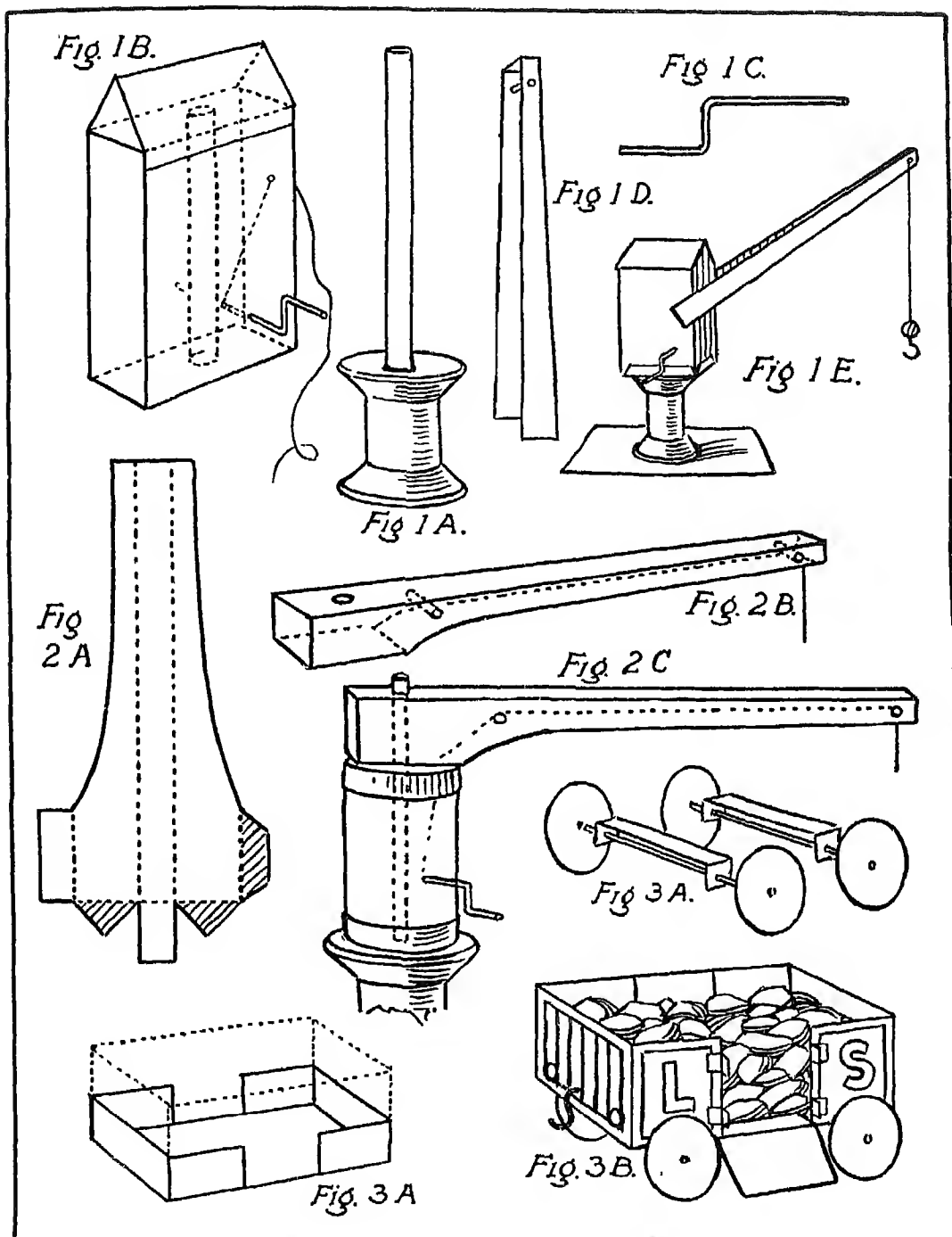


PLATE III

- FIG 1 MODEL CRANE MADE FROM A MATCH BOX AND A COTTON REEL
 FIG 2 MODEL CRANE MADE FROM A MANTLE BOX AND A COTTON REEL
 FIG 3. COAL TRUCK MADE FROM A MATCH BOX

WARM LANDS—FRUIT

In this lesson the children are led to sunny and bright spots of the Empire, where fruit trees grow abundantly. Empire-grown fruit is now freely advertised in the shops.

The first handwork exercise shown on the accompanying Plate consists of a barrel of Tasmanian apples modelled in clay or plasticine. The children begin with a ball, which is rolled on to the modelling board to elongate it into a cylinder. With the cylinder held vertically the rounded ends must be gently pressed down on the board to flatten them as shown in Fig. 1 A. The cylinder is laid horizontally on the board, and one end is rolled very gently with slight pressure to make the barrel-shaped end. This operation is now repeated at the other end of the barrel, the children aiming at making the two ends alike. With the point of the modelling tool, the inside of the top is scooped out to form a cavity, as shown in Fig. 1 B. Markings are made to represent the staves of the barrel; a flat, circular top is shaped and a number of tiny "apples" are modelled to put into the barrel. If the apples are made of clay they may be painted red, or red plasticine may be used (Fig. 1 C).

The next exercise consists of cutting out in paper a picture of a basket of Empire fruit. A simple basket is cut out from folded tinted paper of a fairly dark shade (Fig. 2 A). Full scope for originality should be given to the children in selecting the shape of the basket. Next, an oblong of black paper is taken as a background for mounting. In red, yellow, orange-green and purple gummed

paper the children prepare simple fruit shapes by free cutting. Alternatively, the teacher may hectograph the shapes on white drawing paper, and allow the children to tint them. These fruit shapes are stuck to the background to overlap a little. Finally the basket shape is stuck over them as shown in Fig. 2 B. One or two "grapes" are stuck on the front of the basket to represent them as overhanging.

Fig. 3 C shows a pretty fruit basket planned on a 4 in. square of paper as indicated in Fig. 3 A. The handle is cut on folded paper to secure a symmetrical form (Fig. 3 B). Again, freedom of shape should be allowed in the construction of this basket, and to aid self-expression the children may be allowed to add a pattern in crayon or water colour.

An interesting exercise for group work is shown in Fig. 4. On a large sheet of black paper the teacher sketches a basket and a fairly dark background with the inscription shown in the Plate. The children cut out their various fruit shapes and gum them on to the background to appear as if they are rolling out of the basket.

The various stages in the plastic modelling of an apple are shown in the last illustration. Begin with a ball, afterwards making small conical recesses at the top and bottom with the point of the tool (Fig. 5 A). Round these fix tiny masses of clay to form the "humps" of the apple, smoothing them in with the forefinger (Fig. 5 B). Finally, add a stem and a small leaf (Fig. 5 C).

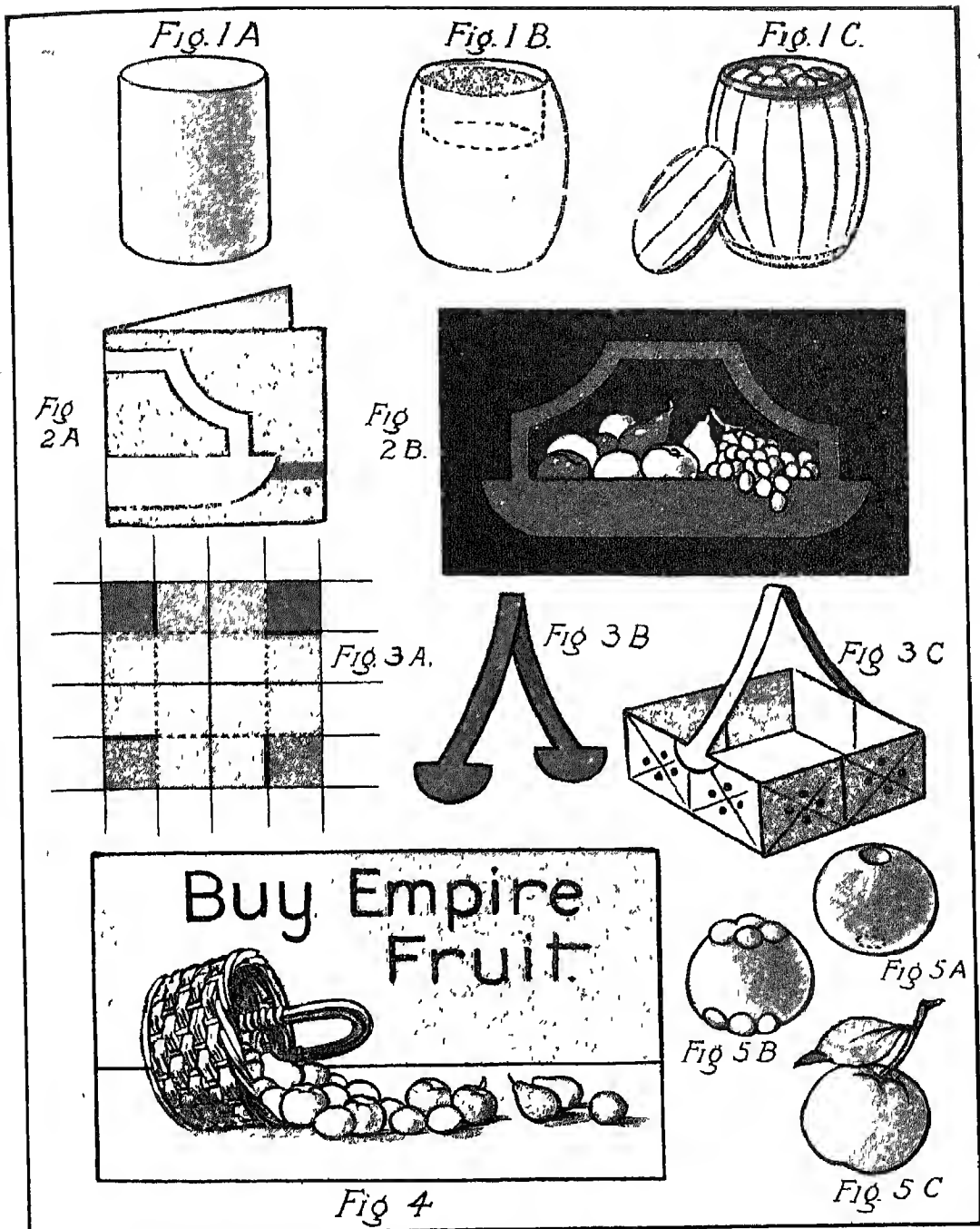


PLATE IV

- FIG. 1 PLASTIC MODEL OF A BARREL OF COLONIAL APPLES
 FIG. 2 BASKET OF FRUIT FOR PAPER-CUTTING
 FIG. 3 PAPER FRUIT BASKET
 FIG. 4 POSTER FOR AN EXERCISE IN PAPER-CUTTING
 FIG. 5 PLASTIC MODEL OF AN APPLE

HOT LANDS WITH SUMMER RAIN

The commodities dealt with in this lesson are rice and tea, with their corresponding Indian environments. The children will doubtless be surprised to hear that the young rice plants grow in water, and that the ploughing of the paddy fields is done under water also, humped bullocks being used to draw the ploughs.

The handwork exercise to illustrate rice cultivation has been planned so that it may be compared with the models in the history lesson No. III—"The Clever River-Men". The teacher will point out that ploughing in India to-day is carried out in much the same primitive manner, and with almost the same primitive implements, as it was in Ancient Egypt. This will form an interesting link between the history and the geography lessons.

Figs. 1 A and B show simple line drawings (which may be traced and hectographed by the teacher) of the native worker of the paddy field and the eastern bullock. These are tinted with crayons or water colour by the children—brown native, yellow loin cloth, white turban and light-brown bullock. The flaps are bent so that the figures will stand, and the native and the two bullocks are glued on to a strip of card as shown in the small sketch (Fig. 1 D). Some silver paper or bits of glass are added to the base, and the whole is sprinkled with fine soil or sand, to allow bright spaces, representing water, to show.

The primitive plough is made so that it may be fixed to the bullocks. Its construc-

tion is shown in Fig. 1 C. A long kindergarten stick or splint of thin wood is required. The end of this is carefully split, and a narrow strip of thin card to form the yoke is fixed into the crack. Narrow paper collars are slipped over the heads of the bullocks and glued to the flat yoke in exactly the same manner as in the case of the Assyrian horses in the model of a chariot in the history model No. XIII. The ploughshare with its handle is modelled in clay or plasticine, and the other end of the stick is thrust right through it as seen in the diagram. In making this part care should be taken to ensure that the end of the handle is just long enough to reach the extended hands of the worker (see Fig. 1 D). To complete the model, the shaft of the plough may be covered with plasticine, or it may be tinted with dark brown water colour.

The construction of a model tea chest is shown in Fig. 2 A. For this model younger children should work on paper divided into 1 in. squares. This will assist them in their measurements. White paper may be used, as it is easy to colour. If the sides of the box are 2 in. square, the shaded fixing flaps may be 1 in. wide. Before gluing together, allow the children to colour the sides, making the borders black and the remainder pale brown. One or two rows of oriental characters may be added to the front (Fig. 2 B). To secure a more realistic finish the interior may be lined with silver paper, as tea chests are lined with lead foil.

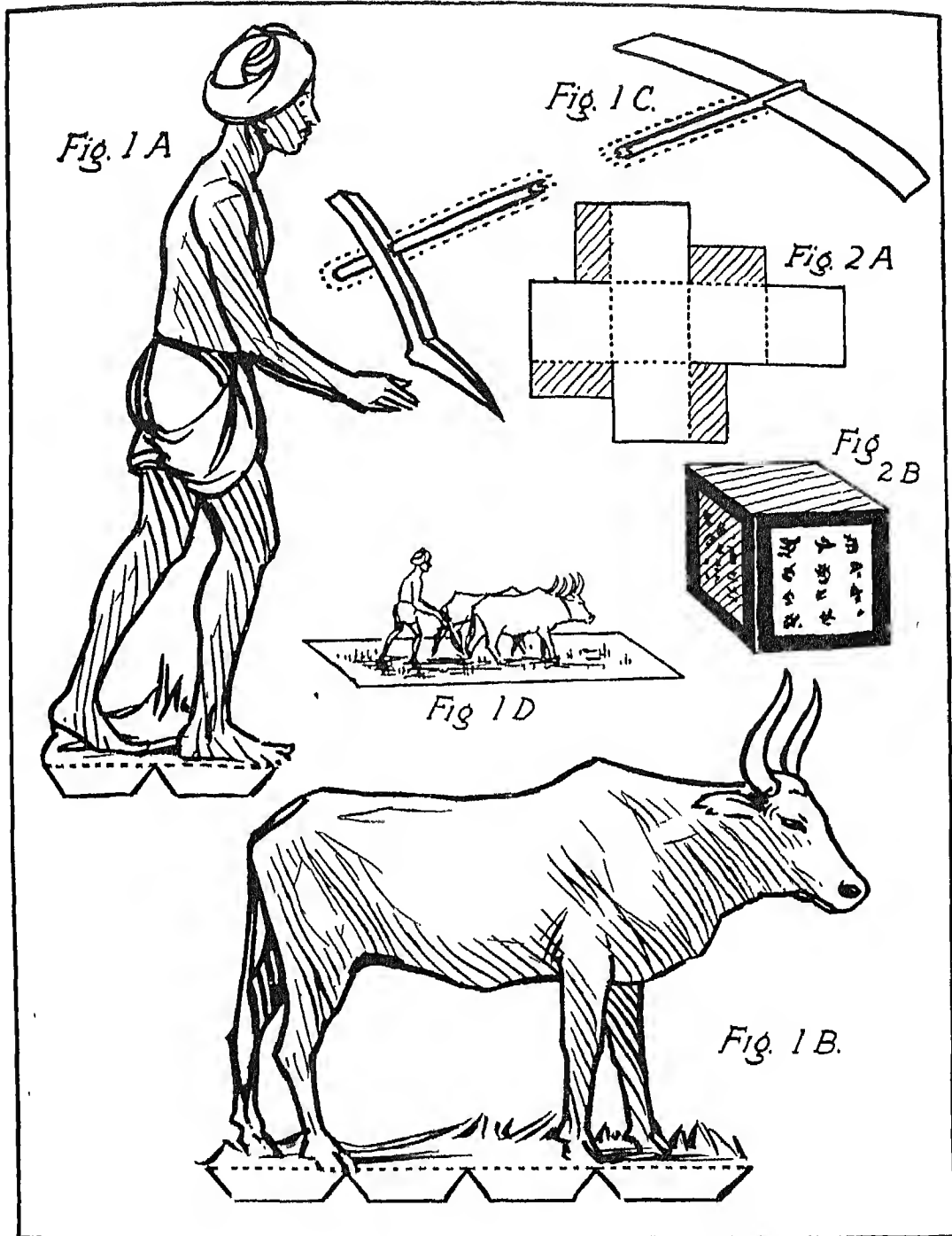


PLATE V

FIG 1 A PADDY FIELD FOR PAPER-CUTTING
 FIG 2 PAPER MODEL OF A TEA CHEST

HOT WET FORESTS

This lesson covers the life and the industries common to the wet tropical forest regions, and naturally the children will be especially interested in the animals. The teacher, in working out this lesson, may find the stories of Kipling's *Jungle Books*, as well as his poems, convenient to use for literary illustrations in which many of the animals of the wet forests are described.

The first exercise is a plastic model of an elephant. Fig. 1 A shows how it may be constructed from masses of clay or plasticine. The body is formed by rolling a sphere into a lemon-shaped mass, a little wider at the front than at the back. A pointed pear shape is modelled for the head, and four cylindrical legs are made broader at the top than at the bottom. The head is first fixed into position as shown (Fig. 1 B). The joins are carefully smoothed down with the tip of the forefinger; a little more trunk is added, and the lower portion of the head is slit with the blade of the modelling tool to form a mouth. With the point of the tool, two holes are made to receive the tusks, which are bent into position. For the eyes, two very small holes are made, one on each side of the head. Two tiny pellets or beads of clay are rolled between the tips of the forefinger and thumb; one of these beads is pressed gently into each hole, and the needle tool is used to make one or two surface markings to represent the eyelids. Ears are next made, quite thinly, bent over and fixed to the head (Fig. 1 C). The tops of the legs are then flattened somewhat and fixed

into position. Round the base of the legs small flattened pellets should be fixed to represent the creature's toes. A thin, worm-like tail completes the animal (Fig. 1 D). The children will have heard of elephants engaged in the Burmese teak industry, so that it will give more interest to the model if the children are allowed to show their elephants "a pilin' teak." For this, they should model a number of cylinders to represent teak trunks, and one of these should be placed in the position of being lifted by the animal's trunk.

The lesson further describes the cultivation of the cocoa bean in West Africa. While all children have a personal interest in chocolate, many are ignorant of the cultivation of cocoa. Fig. 2 A shows the construction of a plastic model of a cocoa pod. First an elongated ovoid shape is modelled, and round its surface are fixed narrow spindles. These are smoothed into the general shape to produce the finished pod (Fig. 2 B). A few small plastic beans may be scattered around the pod.

Perhaps the most popular model of this plate will be the paper cut-out of the tiger (Fig. 3 B). The figure of the tiger (Fig. 3 A) should be traced by the teacher, hectographed and coloured by the children in black and orange stripes. The cut-out is glued to a box lid, and round the creature small twigs are fixed into small lumps of plasticine. The ground is sprinkled with fine soil and green pastel dust, and a forest background, drawn in greens and browns, is fixed behind.

HOT GRASSLANDS

The models for this lesson are associated with cotton growing in the Sudan, and the cultivation of the sugar cane in Jamaica. The teacher will naturally link up this lesson with that in the historical section of this volume, "Man's New Clothes," No IX, for there are given models connected with the story of spinning and weaving.

The first exercise is the construction of a model of a South African native hut. For the foundation of this hut any small round boxes may be used, or half of a round mantle box, or a cardboard tube. Fig. 1 A shows how the box may be cut into shorter lengths by first fixing it on a broom handle, or similar round piece of wood. Fig. 1 B shows how the hut is made. An entrance is cut out, and four strips of thin card are glued round the inside of its top edge. The strips are bent inwards to receive the roof. If, in the opinion of the teacher, the card boxes are too thick for the youngest children to handle, rings may be made of narrow oblongs of stout paper bent round and glued at the edges. The roof (Fig. 1 C) is a bundle of straw or dried grass stems tied at the top and opened out as shown. The box foundation is tinted a creamy brown, to represent mud, the flaps are given a coat of adhesive, and the roof is placed gently into position to complete the model (Fig. 1 D). To make an interesting group model, a number of the small huts may be assembled to form a native kraal.

Fig. 2 B shows a simple paper-cutting

exercise associated with cotton and its production. For the background, a very dark tinted, or black paper is required. An orange or yellow paper, folded at the middle (Fig. 2 A), the shape of a cotton reel is cut out and this is gummed to the top left-hand corner of the background. An oblong of white paper, ruled with lines to represent the cotton, is stuck over the central portion of the reel. In the right hand corner of the background an irregular mass of white paper is gummed. Next, two or three leaf-like forms of brown paper are cut out and stuck *over* the bottom of the white paper. A tiny stalk completes the cotton pod.

In making a plastic model of a cotton *boll*, the first stage is to produce a pear shape, with a slight rib along its length (Fig. 3 A). Next, leafy bracts are added, something like those round our English filbert nuts. Finally, a narrow stalk is fixed into position (Fig. 3 B).

Fig. 4 shows a model of a knife similar in shape to those used in the Jamaican sugar plantations for cutting the sugar cane. It will form an exercise in free cutting in stout paper. A small piece of card can be stuck on each side of the handle.

Fig. 5 gives a suggestion for a "Cotton Book" in which children might keep a small collection of different materials made of cotton, e.g. calico, nainsook, cambric, lawn, etc. The cover may be of light tinted paper, with a cut-out distaff stuck to its corner.



PLATE VII

- FIG 1 MODEL OF A NATIVE AFRICAN HOUSE MADE FROM A CARDBOARD TUBE
 FIG 2 COTTON POD AND COTTON REEL FOR FREE CUTTING
 FIG 3 PLASTIC MODEL OF A COTTON BOLL
 FIG 4 SHAPE OF A KNIFE AS USED IN CUTTING SUGAR CANE
 FIG 5 BOOK FOR SPECIMENS OF MATERIALS MADE FROM COTTON

HOT DRY LANDS

For illustrative purposes, this lesson deals with different methods of transport in the hot dry lands of the Empire. The problem of transport in different countries frequently arises, and several handwork exercises described in this book illustrate various kinds of transport. Lumber wagons and coal trucks have already been made. The different methods of transport may be reviewed with advantage from time to time and the reasons for the wide differences be considered. The dog sledges of the Cold Lands, the camel caravans of the Desert and the bullock wagons of Burma all give scope for lessons on animals used for the transportation of goods and materials.

In this particular lesson, the *gufa* of 'Iraq as used on the river Tigris is described. Here the child will see a strange survival of the primitive means of river transport. We read that the infant Moses was discovered in an ark "daubed with pitch." In a later history lesson, the coracles of the Ancient Briton will be considered. The *gufa* is similar in construction to these primitive boats. It is a circular boat made of woven reeds and coated with bitumen to render it water-tight.

Fig. 1 A shows a plastic model of a *gufa* as used on the Tigris. In shape it resembles a shallow bowl with rounded edges. It may be constructed by one of the two processes described in the section on historical modelling contained in this volume; that is it may be built up by the coiled method, or by rotating the ball of the right thumb in a sphere of clay held in the palm of the left hand. When the modelling is completed, short lengths of dried grass stems or straw, should be embedded crossways in the clay of the interior to represent the woven struc-

ture, and a rectangular seat of clay fixed as shown. To complete the model, there should be added a tiny clay figure holding a match stick "pole" in his hand, also a few clay "melons" (Fig. 1 B).

Further work illustrative of the *gufa*, though of a simpler nature, is shown in Fig. 2. The *gufas* are used principally as ferryboats from one port to another on the Tigris. The eastern scene illustrated is a paper cut-out. An oblong of pale green paper is taken, and to the upper portion pale blue paper is gummed (or pale blue pastel may be used), to represent the sky. To the right hand of the base of the sky a purple hill is gummed. On each side of the picture the orange ground is fixed, that on the right being cut with a curve to represent the river bank. Two or three cut-out palm trees of brown and green are fixed to this ground, also one or two white eastern dwellings cut on the flat. The *gufa* itself (rather small in size, to be in proportion with the rest of the scene) is cut from dark brown paper on the fold, to secure a symmetrical shape, and gummed (with cut-out "reflections") to the water. A tiny figure completes an attractive and pretty scene.

The camel caravan forms an enjoyable project in which all the class can take part. Hectographed copies of the camel and driver (Figs 3 A and 3 B) are distributed to the class. These are painted, a thread is joined from the Arab's hand to the camel, and all are assembled as shown in Fig. 3 C.

Finally, an ostrich cut-out is given in Fig. 4. The bird is coloured in black and white, with orange legs and beak, while the foliage is tinted green. One flap is turned to the left, and the other to the right so that the bird will stand up.

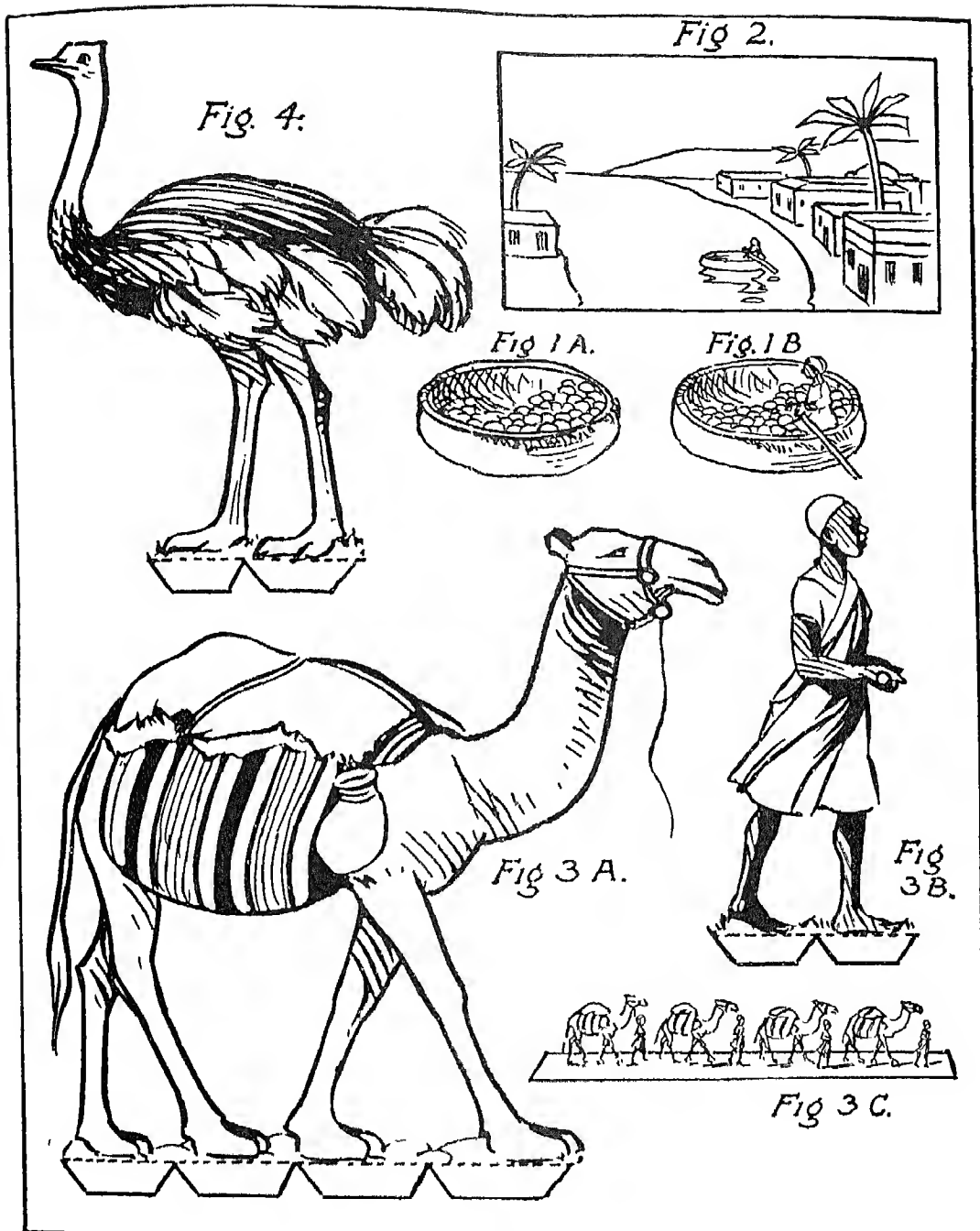


PLATE VIII

- FIG. 1 CLAY MODEL OF A GULA
- FIG. 2 SCENE ON THE TIGRIS FOR PAPER-CUTTING
- FIG. 3 A CAMEL CARAVAN
- FIG. 4 AN OSTRICH CUT-OUT

SUNNY ISLANDS

In this lesson the children are transported to the sunny islands of the South Seas. Young children, in the course of their school work, learn many of the poems of Robert Louis Stevenson, but comparatively few are aware of the fact that he spent his last days under the blue skies of Samoa. This fact may be mentioned during the course of the lesson. (A biography of Robert Louis Stevenson is given in Vol VI)

From pictures showing typical scenery of the South Seas, the children will have gathered that the islands are the home of the coconut palm. The average child is familiar with the nut itself, but they are usually surprised to find that the nuts are not produced on the palm in the form in which they reach us, but are contained in a woody husk and are surrounded with fine brown fibres. Some of these fibres are attached to the nut when it reaches us. They are used for making the familiar coconut matting, and for rope making. A large blackboard sketch, in coloured chalks, will help to explain the structure of the fruit, particularly if it is drawn in section. A clay model to show the structure in section is shown in Figs. 1 A and B. A pear-shaped mass of clay is tapped gently on to the modelling board to provide a flat surface. Next, with the tip of the little finger, an oval depression is made in the middle. Round the edge of the depression, a margin is marked with the point of the modelling tool, and on the outer edge of this margin a narrower margin is marked. The portion remaining is cut up with the point to represent fibres. The model is placed aside to harden. When dry, it is painted in the following manner: the outside blackish brown, the fibres red brown,

the narrow margin dark brown,—to represent the woody shell of the nut. The wider margin and depression are painted white to represent the succulent kernel of the coconut (Fig. 1 B).

The popular banana is a fruit of the South Seas. To model a banana, a sausage-shaped mass is rolled (Fig. 2 A), then pressed gently on the board to produce the four flattened planes peculiar to this fruit (Fig. 2 B). A piece of clay representing a portion of its stem is fixed to the narrower end.

A group model of a coconut shy may be made in a box placed on its side, with one side cut away. A number of wire stands stuck into cork bases (Fig. 3 B) are glued to the box. The stands are made by twisting wire as shown in Fig. 3 A round a circular stick. Clay coconuts and balls complete this group.

The leaf of the banana plant makes a useful paper-cutting exercise. The shape shown in Fig. 4 A is cut out in white paper. This is snipped into segments, and coloured with crayons. When complete, the segments may be bent away as shown in Fig. 4 B.

The tree house (Fig. 5 D) makes an attractive model. A slab of plasticine is cut to the shape shown in Fig. 5 A. (The dotted lines show the position of the house.) The slab is pierced with twigs which are stuck through another slab (Fig. 5 B). A house shape is constructed in stout paper, with a kindergarten stick at the roof to slip over the four projecting twigs at the top of the platform (Fig. 5 C). The whole house is covered with strands of straw, raffia or grass stems secured with seccotine. A twig ladder adds the finishing touch.

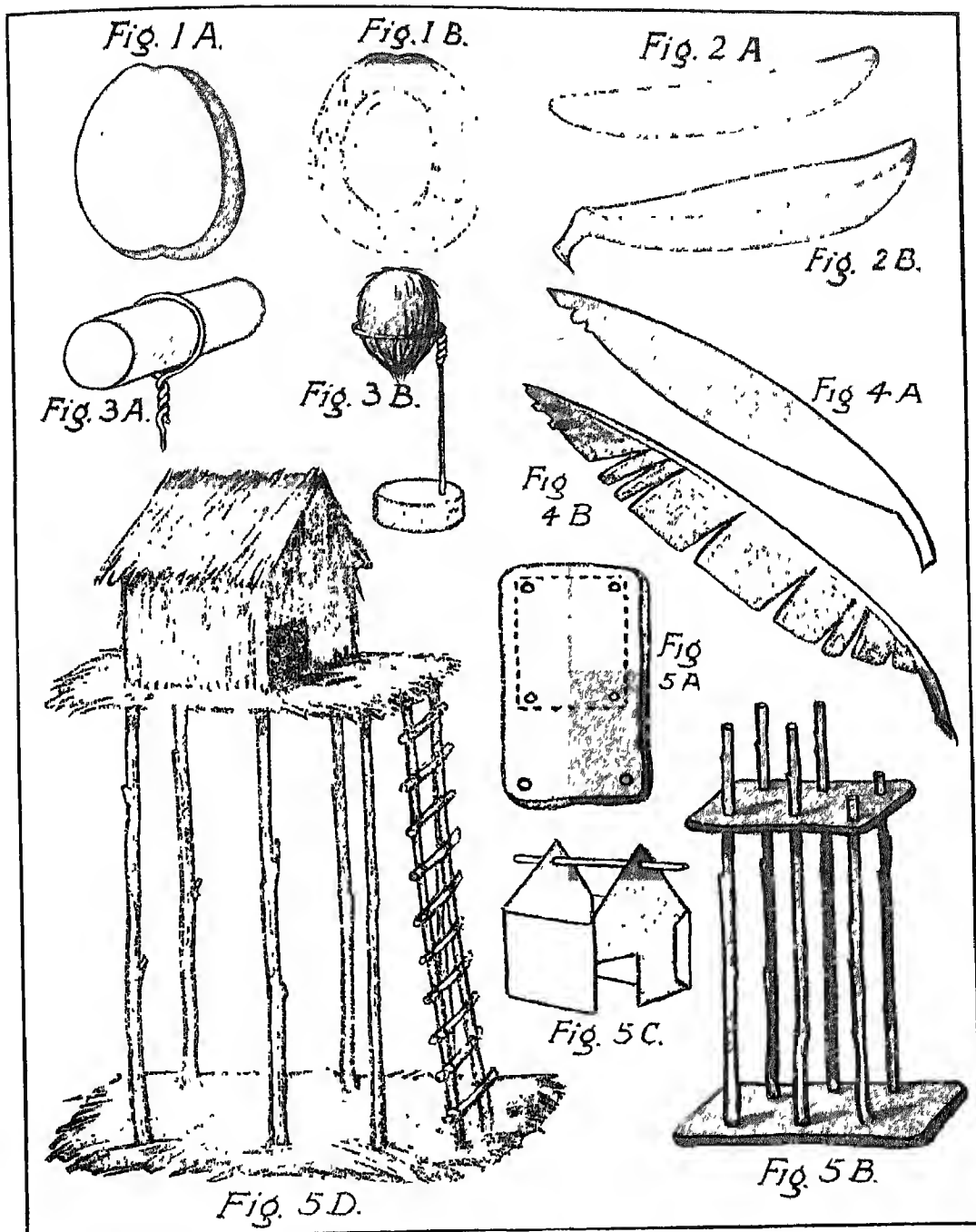


PLATE IX

- FIG 1 PLASTIC MODEL—SECTION OF A COCONUT
 FIG. 2 PLASTIC MODEL OF A BANANA
 FIG 3 MODEL OF A COCONUT SHY
 FIG 4. LEAF OF A BANANA PLANT IN PAPER-CUTTING
 FIG 5 HOUSE OF THE SOUTH SEAS

LIFE ON THE SEA

The handwork for this lesson is associated with the great fishing industries of Newfoundland, British Columbia and the Dogger Bank.

The first models shown are clay or plasticine models of the cod and the salmon. The salmon is the simpler of the two and should be attempted first. In modelling a fish, the children should begin with a ball, carefully rolling it between the palms of the hands to form a spindle shape as shown in Fig. 1 A. For the fish shape, two points must be borne in mind—firstly, the head end must be broader than the tail end and it must be rolled less, secondly, when the spindle has been produced, it must be pressed gently between the two palms to flatten it somewhat, as a fish is flat. The teacher may impress a useful nature lesson here, and it will be a great help to the children, when they are working this exercise, if one is allowed to bring a goldfish to school (A lesson on the goldfish is given in the section on nature, page 338.) Having produced the general shape (Fig. 1 A), the next task is to add flattened fins and tail (Fig. 1 C) which are smoothed into the body. The final stage (Fig. 1 B) is the addition of the details. With the point of the modelling tool, criss-cross markings are made lightly on the body to show the scales; line markings are similarly made on the fins and tail. The mouth, rounded in shape, is hollowed out, and an eye is added on each side of the head. Finally, the gill markings are cut by using

the edge of the modelling tool (held flat) as a knife. If the fish is made of clay, one or two may be stored and when dry painted with silver or aluminium paint.

The cod is made in exactly the same manner as the salmon, but modified as shown in Fig. 1 D. Fig. 2 shows a model of a plate upon which rests a steak of cod.

A clay or plasticine model of a trawler is shown in Fig. 3 B. This model will naturally appeal to the boys. A spindle shape is again rolled, but this time it is flattened on both sides, particularly at the stern end (Fig. 3 A). Simple shapes are fixed to the slab, as shown in the sketch of the finished model, to represent the cabins, bridge and funnel. A long and a short match stick act as masts.

The children have been told of trawlers and the use of the trawl net. Fig. 4 shows an attractive paper-cutting scene that may be attempted by the class working in groups of four or five. The sky is pale blue paper, the sea pale green paper, the rocks dark brown paper, with masses of dark green to represent seaweed in the ocean bed. A tiny boat in black and red paper is cut out and gummed on to the surface of the "water" as shown. On white paper, with dark brown crayon a trawl net is drawn and afterwards cut out. This is gummed to the sea bed, and an ink line is drawn connecting it to the boat.

Fig. 5 shows a cut-out of a fisherman to be traced, painted and mounted to stand.

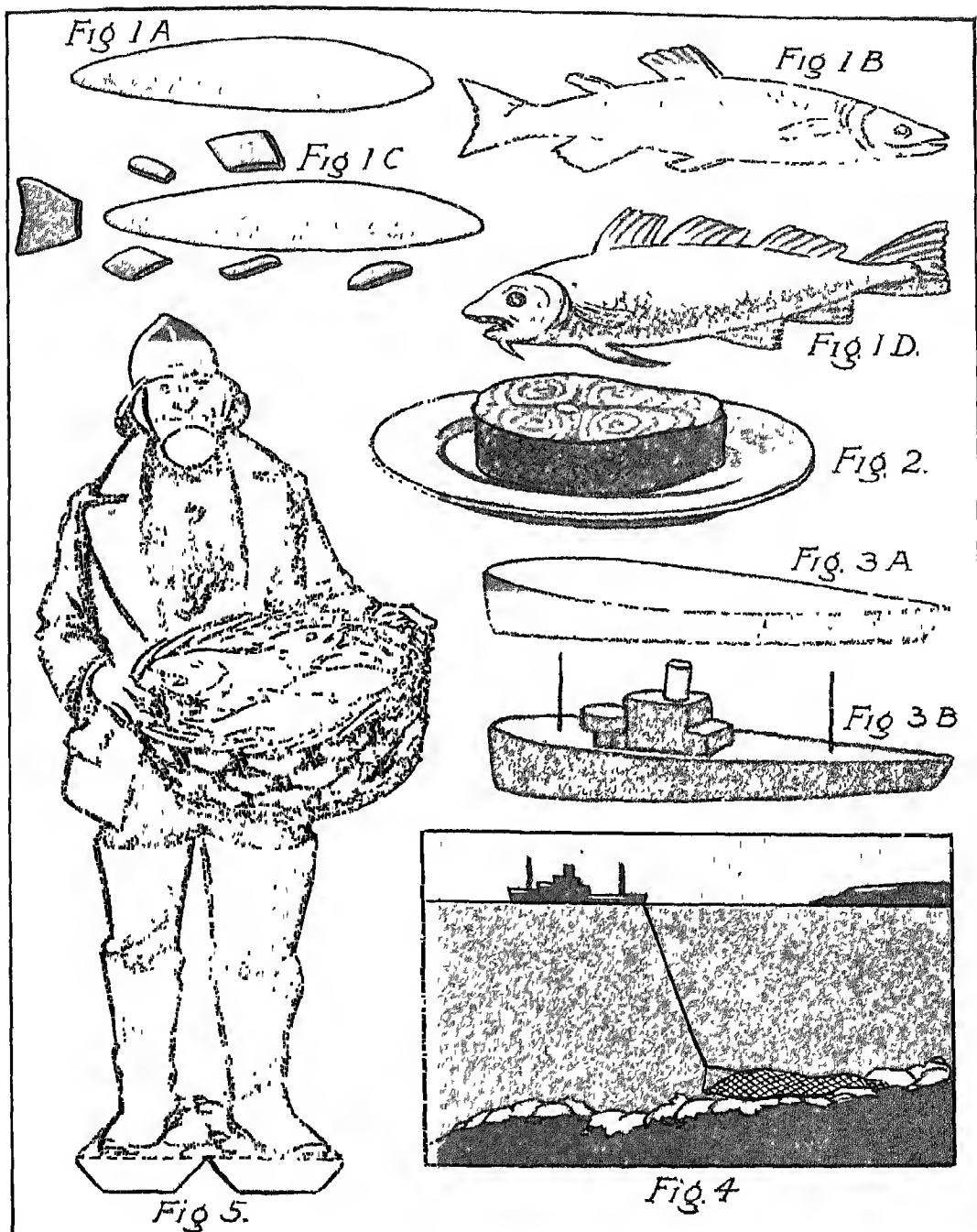


PLATE X

- FIG 1 PLASTIC MODELS OF SALMON AND COD
 FIG. 2. PLASTIC MODEL OF COD STEAK AND PLATE
 FIG 3 PLASTIC MODEL OF TRAWLER
 FIG 4 PAPER-CUTTING SCENE OF TRAWLER AT WORK
 FIG 5 CUT-OUT OF FISHERMAN



.EIGHT SIMPLE PLAYS FOR THE FIRST YEAR'S COURSE

POOR JACK !

People in the play — JACK, MRS SOAPSUDS, DOCTOR SLOW-AND-SURE

Things wanted in the play — A small book. A notebook and pencil. A small white rubber ball. A large handkerchief

Scene — Mrs Soapsuds' kitchen. There is one door. Two chairs stand one on each side of the fireplace.

[Jack is sitting hunched up on one chair]

Jack. Oh dear ! How unhappy I am !

[Mrs. Soapsuds comes in.]

Mrs Soapsuds. It is such a lovely day, Jack. The washing is blowing out like white clouds. Come into the sunshine.

Jack. I don't want to go out.

Mrs. Soapsuds. If you saw the blue sky, and heard the larks singing in the hayfield, I am sure you would feel better.

Jack. No, Mother. I should feel sadder than ever.

Mrs. Soapsuds. Dear ! Dear ! I don't know what to do with you. You are not the same boy since you fell down the hill when I sent you to fill my pail at the well.

Jack. I can't help it, Mother. It is not my fault that I feel so dismal.

Mrs. Soapsuds. It can't be your head, for I mended it so nicely with vinegar and brown paper. . . Well . . . well . . . perhaps Doctor Slow-and-sure will be able to cure you. I asked him to call to-day.

Jack. Oh dear ! He will give me castor oil, I am sure.

[There is a knock at the door]

Mrs. Soapsuds. There he is, I do declare !

[Mrs. Soapsuds opens the door]

Come in, doctor. I am very glad to see you.

[Doctor Slow-and-sure comes in, he has the small book, the notebook and pencil, the ball and the handkerchief in his bag.]

Doctor. Good afternoon, Mrs Soapsuds. Good afternoon, Jack, my boy. What is all this I hear about you ?

Mrs. Soapsuds. Oh, doctor, it is very sad ! I think he must be bewitched !

Doctor. Tut-tut-tut. Stuff and nonsense ! Come, my young friend. . . Your pulse . . .

[He feels Jack's pulse]

Let me see your tongue

[Jack puts out his tongue.]

H'm ! Rather too pink ! A little snail water night and morning should do you good.

Mrs. Soapsuds. That is not the trouble, doctor. He is well enough. But . . . but . . . he cannot smile . . . or laugh !

Jack. It is no use. I have tried and tried.

Mrs Soapsuds. He mopes in the chimney corner all day. . . And he used to be such a merry lad.

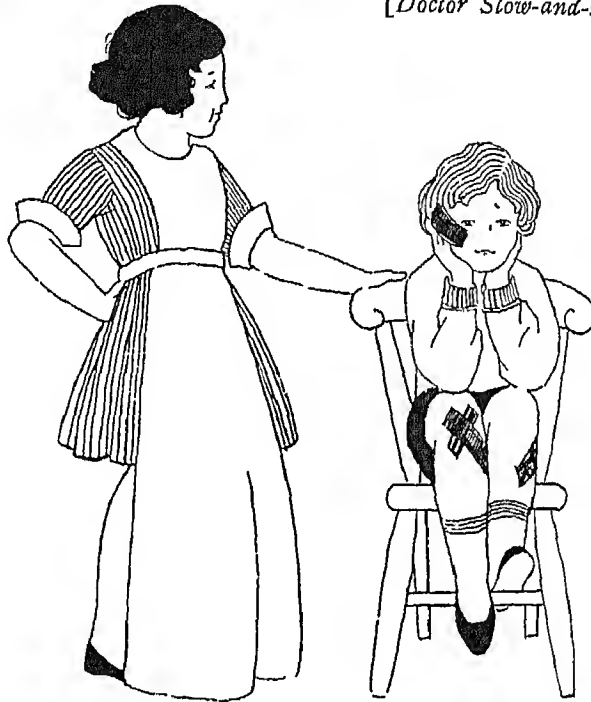
Doctor He who can't smile or won't smile, must be made to smile. Now I shall write a prescription for some tonic pills . . . crushed beetles and peppermint, I think . . . and while I do it, just look at this riddle book

[*Doctor hands the small book to Jack*]
The Hundred Best Riddles . . . If you cannot laugh at some of those I shall be surprised

Mrs Soapsuds There! You see how it is, doctor. Nothing can make him smile or laugh.

Doctor. Dear! Dear! Dear! A very sad case! . . . I give it up! I fear there is nothing that I can do for your son . . . Good afternoon, Mrs. Soapsuds Good afternoon

[*Doctor Slow-and-sure goes out.*]



[*Doctor writes in his notebook, while Jack and Mrs. Soapsuds look at the Riddle Book*]

Mrs. Soapsuds. Oh, Jack! Look at this one . . . "When is your nose like a book?" Ha! ha! "When it is red." Well, I do think that is clever!

[*Jack sighs.*]

Mrs Soapsuds (reading). And see here . . . this is really very funny. "Why is a horse the most wonderful of animals? Because it can eat best without a bit in its mouth." Ha! ha! Oh, I do like that one.

[*Jack bursts into tears*]

Mrs Soapsuds Well, Jack . . . it cannot be helped. We must think of something else.

Jack It is no use, Mother. I shall never smile again.

Mrs. Soapsuds. The doctor is not as wise as I thought.

[*Doctor Slow-and-sure comes in again.*]

Doctor. I have an idea! A splendid idea! My poor boy, did I hear your mother say that you had had a tumble?

Jack. A terrible tumble, doctor I am still sore from my head to my toes.

Doctor. And did you fall on your elbow?

Jack I rolled over and bumped myself everywhere.

Doctor. Is this sore?

[*Doctor pinches Jack's elbow*]

Jack Oof! You are hurting me!

Doctor Aha! Aha! I have got it! . . . Why, of course, he cannot smile or laugh, or do anything but mope and pine . . .

Jack and Mrs Soapsuds together Why? Why? Why?

Doctor The poor boy has lost his funny-bone!

Mrs Soapsuds. Why, so he has! I can feel the hollow place

[*Mrs Soapsuds pinches Jack's elbow*]
What shall we do?

Doctor. Wait a minute . . . wait a minute . . . Let me look in my bag

[*Doctor fumbles in his bag and brings out the ball*]

Doctor Here it is!

Jack But what is it?

Doctor. Now let me stick this on to your elbow with a little dab of glue, and tie it up in a clean handkerchief . . . like that

[*Doctor takes out his handkerchief and ties the ball on to Jack's elbow*]

Doctor There you are!

Mrs Soapsuds But what is it?

Doctor A new funny-bone, Mrs. Soapsuds . . . I always keep a stock of them. Some people lose them so easily. The smallest bump or upset, and off tumbles the funny-bone. That is why there is so much bad temper in the world . . . Now in a day or two that will grow on nicely.

Jack. I say, what a funny face you have! . . . Mother! Look at his red nose, and his blue chin, . . . and his funny pointed ears! Ha! ha! ha! ha! Oh! He makes me laugh! . . .

Mrs. Soapsuds Stop at once, you rude boy!

[*Jack laughs and laughs.*]

Doctor. Never mind, Mrs Soapsuds. Let him laugh. The new funny-bone fits him, that is clear.

Mrs Soapsuds. Then he is cured . . . Oh, thank you, Doctor Slow-and-sure!

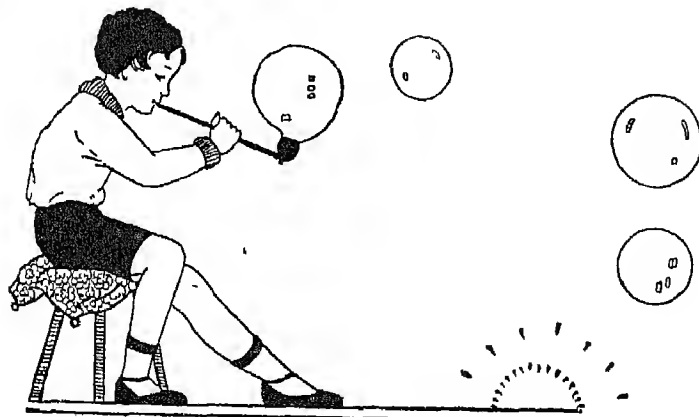
Jack And I am off to show my new funny-bone to Jill

[*Jack runs out laughing.*]

Doctor I may be slow, but I am sure too, Mrs Soapsuds.

Mrs Soapsuds Indeed, Doctor, you are a wise man

[*Doctor Slow-and-sure and Mrs. Soapsuds shake hands*]





THE TRAVELLERS AND THE BEAR

People in the Play.—FIRST TRAVELLER.
SECOND TRAVELLER. THE BEAR.

Scene—A lonely road. In the middle of the stage stands a large tree which must be strong enough to allow a child to climb up into it (a chair will serve the purpose very well).

[*The Travellers walk in. The Second Traveller limps; he carries a stick and has a satchel over his shoulder. In the satchel are a bottle of water and some bread and cheese. The First Traveller is mopping his forehead with his handkerchief, he has a penknife in his pocket.*]

First Traveller. Phew! How hot it is!

Second Traveller. This long walk is too much for my lame leg. I can hardly put one foot before the other.

First Traveller. Look, the sun is almost over our heads. It must be twelve o'clock.

Second Traveller. Let us find some shady place where we can rest.

First Traveller. And we will drink from the water bottle you are carrying.

Second Traveller. Over there is a fine big tree, that is the very place for us.

First Traveller. Good. We shall be out of the sun.

[*First Traveller goes to the tree and sits down under it.*]

First Traveller. Oh, this is grand! It is quite cool in the shade of these green leaves and there is soft moss to lie on.

[*Second Traveller leans on his stick and takes off his satchel.*]

Second Traveller. Please give me your hand to help me to sit down. My leg is so stiff that I cannot bend it.

[*He takes the First Traveller's hand and sits down very slowly.*]

Second Traveller. Ah! That's better!

First Traveller. Now for your water bottle.

[*Second Traveller opens his satchel and takes out the bottle.*]

Second Traveller. It is only half full now. Do not drink too much, or we shall be thirsty later on.

[*First Traveller takes bottle and drinks.*]

First Traveller. Very good!

[*First Traveller drinks again and smacks his lips afterwards.*]

First Traveller. This makes me feel a new man.

Second Traveller. Remember that we have three more miles to go.

First Traveller. I couldn't be more thirsty than I was just now.

[*First Traveller drinks again.*]

Second Traveller. I am rather thirsty too.

[*First Traveller drinks again. He passes back the bottle nearly empty.*]

First Traveller. Now your turn.

Second Traveller. Well, I am afraid this will be our last drink before we get home.

[*Second Traveller drinks the rest of the water.*]

First Traveller Have you anything to eat in your satchel?

Second Traveller. I have a little bread and cheese

First Traveller. I was just wishing for some bread and cheese.

Second Traveller. I'm afraid there is not very much

[*Second Traveller takes out bread and cheese*]

First Traveller Here is a penknife. I will cut off a piece of bread.

[*First Traveller cuts off a large piece of bread.*]

First Traveller. And the cheese? It smells very fresh and good.

[*First Traveller cuts off a large piece of cheese*]

Second Traveller Luckily I am not very hungry.

[*They sit and eat. Suddenly the Bear growls in the distance*]

First Traveller. What was that?

Second Traveller. I heard nothing.

[*They go on eating. The Bear growls more loudly.*]

First Traveller. Surely you heard something that time?

Second Traveller Yes It seemed to be a growling sound

First Traveller. I hope it is not a wild beast.

Second Traveller I have heard that there are bears in the wood near by, but I have never seen any.

[*First Traveller springs to his feet*]

First Traveller Bears, did you say?

Second Traveller We shall be in great danger if we meet one here.

[*Bear slowly prowls in. He looks from side to side and sniffs the air*]

First Traveller Oh, look! The tree!

[*First Traveller climbs into the tree*]

Second Traveller. Pray help me! I can't get up!

[*First Traveller takes no notice*]

Second Traveller. What can I do? I will pretend to be dead I have heard that bears will not touch a dead man

[*Second Traveller lies down, quite still*
Bear sees the man on the ground and walks up to him. He smells the man's face, and then walks slowly out, growling.]

First Traveller Has he gone?

Second Traveller I think so.

First Traveller. Thank goodness for the tree!

Second Traveller. We must not stop here any longer.

First Traveller. Let us be going at once

[*First Traveller scrambles down from the tree*]

Second Traveller. What a narrow escape! Will you help me to get up?

[*First Traveller helps him up and hands him his satchel and stick*]

First Traveller. Here are your things.

Second Traveller. Thank you.

[*They start to walk out*]

Second Traveller. What an adventure!

[*First Traveller begins to laugh*]

First Traveller Ha! ha! the bear put his face so near yours! What did he whisper to you?

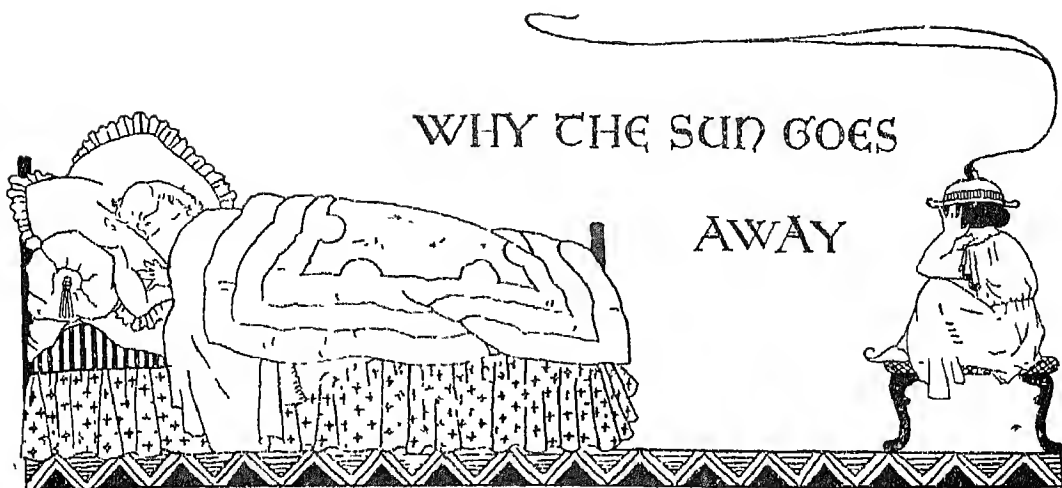
Second Traveller He told me a secret.

First Traveller. What secret?

Second Traveller He said that I must be careful to choose unselfish friends, who will not forget me in time of danger.

[*They walk out*]





People in the Play—MARY (a little girl in nightclothes). MARY'S MOTHER. MOONLIGHT (a girl with long, fair hair, dressed in white) STARLIGHT (a boy dressed in dark blue, spangled with stars). FIRELIGHT (a small boy dressed in red) BABY NIGHTLIGHT (a very small girl dressed in a long primrose yellow frock with a round yellow bonnet). SUNLIGHT (a girl dressed in red and yellow). FATHER SUN (a big boy, or the teacher, dressed in bright yellow, with a coronet of rays, and a dark cloak with a yellow lining).

Scene.—Mary's bedroom, which contains a window, a door, a fireplace, a bed and a chair.

[*Mary is in bed. Her Mother is folding her clothes. Moonlight and Starlight are outside the window. Firelight is crouching down in the grate. Baby Nightlight sits curled up on the chair at the foot of Mary's bed, her arms folded and her head resting on them.*]

Mary. Don't go yet, Mummy.

Mother. Why not, darling?

Mary. Because I'm afraid of the dark.

Mother. But it isn't dark, dear. There's the moon shining so brightly in the sky with all the stars around her, and the fire burning up nicely in the grate. I'll light your little nightlight too.

[*Mother strikes a match and pretends to light Nightlight. Nightlight wakes up and stands up on the chair*]

There now! With moonlight and starlight and firelight, and your little nightlight as well, you can't say that it is dark.

Mary. But I want the sun to come and give me his sunlight. Mummy, why does the sun go away every night?

Mother. Because he must.

Mary. Yes, but why must he?

Mother. Now, darling, it's time all little boys and girls were asleep. Don't ask any more questions, but just lie down like a good girl and go to sleep quietly.

[*Mother tucks Mary up, kisses her, and goes out*]

Mary (*sitting up in bed*). Moonlight, Moonlight, come and talk to me.

[*Moonlight comes in at the window. She speaks very slowly and gently*]

Moonlight.

I shine softly down
On the fields and the town,
And my silvery light
Is the lamp of the night.

Mary. Moonlight, may I ask you something?

Moonlight. If you like.

Mary. Moonlight, why does the sun go away, and take the sunshine with him?

Moonlight (thinks for some time and then says slowly). I don't know. I have often wondered about that myself. Shall I ask *Starlight*?

Mary. Oh, please do!

[*Moonlight* goes to the window and calls.]

Moonlight. *Starlight*! *Starlight*!

[*Starlight* jumps in through the window.

He moves and speaks quickly]

Starlight

Starlight, *starlight*,

Twinkles in the quiet night

From a million stars which lie

Powdered over all the sky.

Mary. *Starlight*, why does the sun go away?

Starlight (skipping round and round) I don't know, I don't know I've never thought about it. Let's ask little brother *Firelight*

[*Starlight* dances to the fireplace and calls.]

Firelight! *Firelight*!

[*Firelight* jumps up from the grate.

He bobs up and down as he talks]

Firelight.

Flicker, flicker,

Slower, quicker,

Now I grow and then I shrink,

Now I glow and then I blink,

Up I shoot and down I sink.

[*He sits down cross-legged on the floor.*

Mary jumps out of bed and runs to sit down beside him with the others.

They arrange themselves in a row facing the audience in this order: Mary, Moonlight, Starlight, Firelight.]

Starlight. *Firelight*, *Mary* wants to know why Father Sun goes away and takes the sunshine with him. Do you know?

Firelight. No, I don't. Have you asked *Baby Nightlight*?

Starlight. It's no use asking her *She* won't know. *She's* much too tiny.

Moonlight (gently). Still, we might ask her I'll go and fetch her

[*Moonlight* goes over to the chair.]

Come down, little *Nightlight*

[*Baby Nightlight* rubs her eyes]

Baby Nightlight

I'm wee, I know,

But I can glow

With a bright

Little light.

Moonlight. Come and talk to all the other *Lights*. We want to ask you a question

[*She carries Baby Nightlight to the others, and they sit her down between Moonlight and Mary, each holding one of her hands*]

Firelight. *Baby Nightlight*, do you know why Father Sun goes away?

Baby Nightlight (sleepily). No, *Baby Nightlight* doesn't know.

Starlight. There, I told you so.

Firelight. Oh, you're very clever, aren't you?

Starlight. No, it's you who are stupid.

[*Starlight* and *Firelight* start to fight]

Moonlight. Now, boys, no fighting Suppose we ask Father Sun himself why he goes away?

Starlight. But he isn't here.

Firelight. We can call him, stupid

Mary. Oh, do let us do that.

Moonlight. Very well, we will.

[*They all stand up and turn their backs to the audience*]

All together. Father Sun! Father Sun!

Moonlight. Now we must all sit down quietly and wait till he comes.

[*Mary, Baby Nightlight and Moonlight sit down on one side of the stage, Starlight and Firelight on the other.*]

Mary. I think Father Sun is very cruel to go away and leave us alone in the dark.

Moonlight. I don't. Father Sun is always good.

Starlight. And kind.

Firelight. And warm.

[*Baby Nightlight* has fallen asleep A dark figure wrapped in a black cloak appears at the back of the stage.]

Mary. Oh, look! Who is that? Oh, it must be Darkness,—I'm frightened! I'm frightened!

[*Sunlight runs on to the stage She goes to Mary and takes her hands*]

Sunlight. Don't be frightened, Mary I am Sunlight, and I have come to tell you that Father Sun is on the way.

Mary. But who is that?

[*She points to the cloaked figure which is moving backwards down the stage*]

Sunlight You silly girl! Don't you know who that is? Look!

[*She runs to the figure and turns him round. It is the Sun.*]

All together. Why, it is Father Sun!

Sun Yes, darkness is only the back of the sun

[*Sun comes forward and sits on the chair He takes Mary on his knee, and the others stand or sit round him*]

Sun Well, little people, why have you called me here? I ought to be at the other side of the world, you know. I must not stay with you long, or the people who live there will be wondering what has happened to me.

Firelight. Father Sun, we want to ask you a question

Moonlight It is Mary's question really. I think she should ask it herself.

Sun. Well, Mary, what is the question?

Mary (shyly). Father Sun, why do you go away every night, and take Sunlight away with you, so that we are left alone in the dark?

Sun. You see, Mary, the earth is round like a ball, and that means that I cannot shine on both sides of it at once. All day long I am shining on this side of it, but at the end of the day I must shine on the other side. If I stayed with you here all night, the poor little boys and girls on the other side of the world would have to live always in the dark. But when I go to shine on them I leave you these little friends of yours to keep you company.

Moonlight. I shine on you.

Starlight I twinkle at you

Firelight I bob up and down and peep through the bars of the grate at you.

Baby Nightlight. And I sit by your bed all night.

Sun And remember, Mary, that I only seem to go away at night. I am really there all the time, and when you wake up in the morning you will find me shining as brightly as ever in the sky. Now it is time you were asleep Into bed with you!

[*Mary gets into bed Father Sun tucks her up and Sunshine kisses her*]

Sun You will find me shining on your bed when you wake in the morning

[*Sun wraps his cloak round him and goes out, followed by Sunlight.*]

Mary Good night, Moonlight.

Moonlight Good night, Mary

[*Moonlight goes out through the window.*]

Mary. Good night, Starlight.

Starlight Good night; sweet dreams

[*Starlight climbs out too*]

Mary Good night, Firelight

Firelight. Good night I will try to keep alight all night for you.

[*Firelight goes to the fireplace and crouches down in the grate.*]

Mary Good night, Baby Nightlight.

Baby Nightlight (sleepily) Good night, Mary.

[*She climbs up into her chair. Mary lies down. There is silence*]

Mary. Shall I blow you out, Baby Nightlight? Because I don't mind the dark now.

Baby Nightlight (more sleepily) Yes, please

[*Mary blows at Baby Nightlight, who curls up and goes to sleep.*]

Mary. Good night

[*Mary falls asleep*]





COCK-A-DOODLE-DOO



People in the Play—MOTHER BROOM (an old woman dressed in a rough frock, with a white cap and apron and a red shawl) COCK-A-DOODLE-DOO (a weathercock, which is shown on his headdress) TOM THE PIPER'S SON (he carries a pipe, or whistle). JACK HORNER (he carries a pie dish). LITTLE BOY BLUE (he wears a blue smock and a blue hat with a blue feather in it, he carries a horn). MARY QUITE CONTRARY (she wears a long flowered cotton frock and a big straw hat tied with ribbons; she carries a watering-can or a garden rake). BO-PEEP (she is dressed like Mary, only her frock is shorter; she carries a crook) LITTLE MISS MUFFET (she is dressed in a long muslin frock tied under the arms with a sash, a white mob cap with ribbons to match the sash, and black mittens) DAME DRY WEATHER (she is dressed like Mother Broom, only with a shawl of another colour) MASTER WET WEATHER (he wears a waterproof and sou'wester, and carries a small umbrella) THE DOG THE CAT

Things wanted in the play—A cardboard screen in the shape of a shoe to represent the shoe house; it has a window and a door cut in it. Some bowls and spoons. A buckled shoe. A fiddlestick.

Scene—Outside the shoe house. The two stools stand one on each side of the house door.

[When the curtain rises the stage is empty. The children are gathered behind the house. They begin to sing.]

Children (singing)

There was an old woman who lived in a shoe,
She had so many children she didn't know
what to do.

[Mother Broom comes out of the house.]

Mother Broom What a day I have had! I have spring-cleaned the house from toe to heel. And I have had to do it all by myself, not one of my children would help me. Tom the Piper's Son was out stealing pigs again, the bad boy. Mary was in the garden watering her flowers—she grows more contrary every day. Bo-Peep and Little Boy Blue were out in the meadow looking after the sheep. Jack Horner was at home, and so was Miss Muffet. But Jack was eating pie in the corner all the morning, and Miss Muffet was so frightened by a big spider that she would do nothing but cry, so they were no help to me. Now they are all inside the house eating their dinner. I have given each of them a great piece of bread, and a bowl of broth, I hope they are eating nicely.

[Mother Broom goes to the window and listens. From inside the house comes the sound of spoons scraped in bowls.]

Children, children, eat your broth nicely.

[The scraping noise dies away.]

Now I can have a little fresh air, and rest after my morning's work.

[Mother Broom sits down on a stool and falls asleep. Cock-a-doodle-doo comes in from the side of the stage.]

Children (singing, from inside the house)

Cock-a-doodle-doo !
My dame has lost her shoe.
My master's lost his fiddling-stick,
And doesn't know what to do.
Cock-a-doodle-doo. Cock-a-doodle-doo !

Mother Broom (waking up suddenly).
Bless me ! What was that ? A cock ! Shoo !
shoo ! I won't have chickens in my garden.

Cock. Oh, please help me ! I am in such trouble.

[He begins to cry.]

Mother Broom (patting his head) There !
there ! Tell me what the trouble is.

*[Mother Broom sits down on the stool
again Cock stands beside her]*

Cock. I am Cock-a-doodle-doo, and I
belong to the old lady and gentleman next
door.

Mother Broom. You mean Master Wet
Weather and his wife Dame Dry Weather.

Cock. Yes, that's right. I am the weather-
cock on top of their house. They call it
Weather Cottage, and they live there all the
year round. They are funny old people.
My master goes out only in wet weather,
and my mistress only when it is fine.

Mother Broom. Then do your master and
mistress never go out together ?

Cock. Only when the weather is neither
very wet nor very dry.

Mother Broom. How strange ! But what
is your trouble ?

Cock. This morning my mistress found
that one of the shoes with gold buckles that
she wears on Sundays had disappeared. And
my master's fiddlestick has gone too. They
both think that I took them. They are very
angry with me, and say that if I do not
find them and bring them back I shall be
punished.

Mother Broom. Poor Cock-a-doodle-doo !
What can I do to help you ?

Cock. I think that one of your children
must have taken the shoe and the fiddle-
stick, for there is no one else living near.

Mother Broom. I will call them out one
by one, and we will ask them if they know

anything about them. I will call Tom first.
He is a bad boy, and very fond of stealing,
I'm afraid. Tom ! Tom !

Children (singing from inside the house).

Tom, Tom, the Piper's Son,
Stole a pig and away did run
The pig was eat and Tom was beat,
And Tom went roaring down the street

[Tom comes out of the house]

Mother Broom. Tom, have you seen
Dame Dry Weather's shoe, or her husband's
fiddlestick ?

Tom. Not I. I have been far too busy
all the morning stealing pigs. I got home
only just in time for dinner.

Mother Broom. Yes, that is true. Run
away, then, Tom. We will ask Jack Horner.
He is the best of all my family, if only he
were not so fond of pie. Jack ! Jack !

Children (singing)

Little Jack Horner
Sat in a corner,
Eating his Christmas pie.
He put in his thumb,
And pulled out a plum,
And said, "What a good boy am I !"

[Jack comes out of the house.]

Mother Broom. Jack, have you been into
Weather Cottage to-day, and stolen any-
thing ?

Jack. Oh no, Mother Broom ! I have
been sitting in the corner all the morning,
eating that nice pie you gave me. I am a
good boy !

Tom. You might have saved some of it
for the rest of us. You are too greedy and
selfish to be really good.

Mother Broom. Anyway, Jack isn't the
thief. I don't think it can have been Little
Boy Blue, but I'll ask him.

Tom. He's fast asleep.

Mother Broom. Go and wake him, then.

[Tom goes in]

Children (singing).

Little Boy Blue, come blow up your horn,
The sheep's in the meadow, the cow's in
the corn.

Where is the boy that looks after the sheep ?

He's under the haycock, fast asleep

[*Tom brings in Little Boy Blue, who is yawning and rubbing his eyes*]

Tom Here he is, the lazy fellow !

Mother Broom. Wake up, little son. Did you take a shoe and a fiddlestick from Weather Cottage ?

Boy Blue No, I've been fast asleep under a haycock all the morning, I woke up only just before dinner time

Mother Broom None of the boys seems to have taken the things, we must ask the girls next I'll try Mary first. Mary ! Mary !

Children (singing)

Mary, Mary, quite contrary,
How does your garden grow ?
With silver bells, and cockle shells,
And marigolds all in a row.

[*Mary comes out of the house.*]

Mother Broom Mary, do you know anything about Dame Dry Weather's slipper, or Master Wet Weather's fiddlestick ?

Mary No, I don't. I am too busy cailing for my pretty garden to bother about such stupid things.

Tom. Contrary as usual !

Mother Broom Then we must ask Bo-Peep Bo-Peep !

Children (singing)

Little Bo-Peep,
She's lost her sheep,
And doesn't know where to find them.
Leave them alone,
And they'll come home,
Bringing their tails behind them.

[*Bo-Peep comes out of the house*]

Bo-peep. Oh, I have had such a dreadful morning ! Lazy Little Boy Blue went to sleep instead of watching the sheep, and they all wandered into the wood I spent all the morning looking for them But I found them at last, and now they are all safe in the fold.

Mother Broom I am so glad you did not

lose them altogether. And now you must help us to find Dame Dry Weather's shoe and her husband's fiddlestick. They are lost too.

Bo-Peep. I'm afraid I don't know anything about them

Mother Broom Then there is only Little Miss Muffet left to ask Miss Muffet ! Miss Muffet !

[*Miss Muffet looks out of the window*]

Come out here, I want to ask you something.

Miss Muffet. Are there any spiders about ?

Mother Broom No, none at all.

Miss Muffet I can't come out, I'm too frightened.

Bo-Peep. I'll go and fetch her

[*Bo-Peep goes in the house*]

Children (singing)

Little Miss Muffet
She sat on a tuffet,
Eating her curds and whey.
There came a big spider
And sat down beside her,
And frightened Miss Muffet away

[*Bo-Peep comes out of the house, leading Miss Muffet by the hand Miss Muffet runs to Mother Broom and climbs on to her knee*]

Mother Broom You see, there's nothing to frighten you.

Miss Muffet (pointing to Cock) What's that ?

Mother Broom. That is only Cock-a-doodle-doo He wants to know if you have seen a lost shoe and a fiddlestick

Miss Muffet. No, I haven't. I don't like him. I'm afraid.

Mother Broom The lost things are still not to be found Children, one of you *must* have taken them.

All No, indeed, we have not.

Mother Broom You are not telling the truth If the slipper and the fiddlestick are not found, you will *all* be punished. There will be no bread for supper, and I shall whip you all soundly and send you to bed early.

Children (singing)

She will give us our broth
Without any bread,
And whip us all soundly
And send us to bed

This is dreadful What shall we do?

Tom Mother Broom, you haven't asked
the dog

Jack. Or the cat.

Mother Broom No, I had forgotten them
Tom, go and fetch Fido

[*Tom goes into the house*]

Children (singing).

Oh where and oh where has our little dog
gone?

Oh where and oh where is he?

With his ears cut short and his tail cut long,
Oh where and oh where can he be?

[*Tom comes out of the house carrying a
shoe Fido follows*]

Tom. Here he is, the naughty dog Look
what I found in his kennel!

All A shoe!

Cock Why, it is my mistress's Sunday
slipper! Cock-a-doodle-doo!

Mother Broom Mary, go and fetch the cat.

[*Mary goes into the house*]

Children (singing)

Hey, diddle, diddle,
The cat and the fiddle,
The cow jumped over the moon
The little dog laughed
To see such sport,
And the dish ran away with the
spoon.

[*Mary comes out of the house with the
cat, carrying a fiddlestick*]

Mary. I found him playing his fiddle
with this fiddlestick.

Cock Why, it is the one my master lost!
Cock-a-doodle-doo!

Mother Broom. Fido and Puss, you have
both been very naughty.

Dog and Cat (together). We are very sorry.

Dog. I took the shoe because I am only
a puppy, and I thought it would be nice
to cut my teeth on

Cat I took the fiddlestick because it

was my music lesson, and I had broken my
own bow

Children. Forgive them, dear Mother
Broom

Mother Broom Very well, I forgive them
both

[*Dame Dry Weather and Master Wet
Weather come in from the side*]

Why here come Dame Dry Weather and her
husband, Master Wet Weather.

*Dame Dry Weather and Master Wet
Weather (together)* How do you do?

Mother Broom How is it that you are
both able to come out at the same time?

Dame Dry Weather Well, you see, it's
not a very wet day—

Master Wet Weather And it's not a very
dry day—

Dame and Master (together) So here we
are out together.

Mother Broom We have some good news
for you Your shoe and fiddlestick are found

[*The dog brings the shoe to Dame Dry
Weather*]

Dog. Here is your shoe I am so sorry
I stole it

[*The cat brings the fiddlestick to Master
Wet Weather*]

Cat Here is your fiddlestick I am
sorry too.

Dame Dry Weather. We forgive you.

Master Wet Weather Because we are so
glad to have them back again

Cock Will you be kind to me again now?

Dame Dry Weather Of course we will

Cock (flapping his wings for joy) Cock-a-
doodle-doo! Cock-a-doodle-doo!

Children (singing)

Cock-a-doodle-doo!

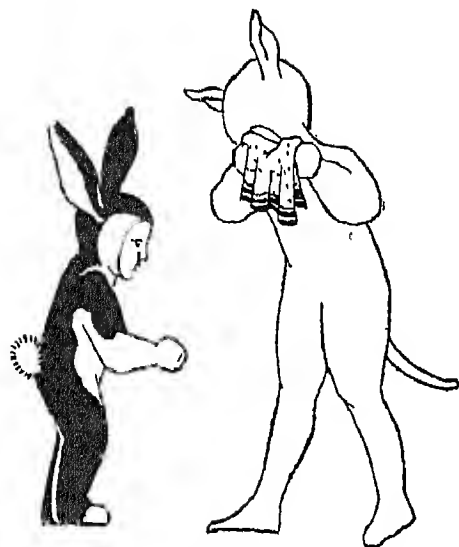
My dame has found her shoe.

My master's found his fiddling-stick,

And now we'll dance with you

[*They dance in pairs, to the tune of this
rhyme Mother Broom dances with
the Cock, Tom with Mary, Jack
Horner with Bo-Peep, Boy Blue
with Miss Muffet, and Dame and
Master with each other*]

MISTER RABBIT AND MISTER FOX



People in the Play—MISTER RABBIT.
MISTER WOLF MISTER FOX.

Things wanted in the Play—A newspaper.
A large tablecloth.

Scene.—A room in the house of Mister Fox. There is a table covered with a cloth. Two chairs stand near the table.

[*Mister Fox is sitting on a chair reading a newspaper*]

Fox. Ha! ha! Very funny! The Tortoise knows how to put a good story together

[*He turns to another page*]
What's this?

[*He reads aloud from the paper*]

"Mister Rabbit's cruel trick, Yesterday morning Miss Cow was found in Farmer Green's orchard in a sad and weak state. Her horns were stuck fast in the trunk of an apple tree and she had been standing there all night. She was rescued by the help of Mister Horse and Mister Donkey. When she was well enough to speak she said that Mister Rabbit had advised her to butt the tree to get down the apples" Dear! dear! A cruel trick indeed! Poor Miss Cow!

[*Mister Wolf knocks at the door*]

Fox. Come in.

[*Mister Wolf walks in.*]

Wolf Good-day, Mister Fox

Fox Good-day, Brother Wolf. How kind of you to pay me a visit, come and sit down How are you?

Wolf Very worried, dear Fox, very worried

[*Mister Wolf sits down*]

Fox. Why, what is the matter?

Wolf It's this rascal Rabbit, who is worrying the life out of all the animals for miles round

Fox It is odd that you should have come to talk about him Just as you knocked I was reading this story of his cruelty to Miss Cow Such a charming young lady, too, I don't know how he had the heart to do it

Wolf It is one trick after another with him I have just heard that he almost frightened the life out of Mister Horse's youngest son He tied a tin can with a pebble in it on to the poor child's tail. Mis. Horse was quite upset about it.

Fox. Horrible! What do you think we ought to do?

Wolf Rabbit is not easy to catch, he can run so fast, but I have an idea, and I want you to help me.

Fox. With all my heart.

Wolf I heard Rabbit say that he was coming to call on you in half-an-hour. You lie down on the floor and pretend that you are dead, and don't say a word until he comes up and touches you. Then get up and hold him fast I will run home and call my wife. The three of us can easily make an end of him He will make a splendid savoury stew for supper

[*Mister Fox lies down on the floor*]

Fox. Rabbit stew! How delicious!

Wolf I will cover you with this tablecloth. Rabbit is very curious, he is sure to come and lift it up to look at you.

[*Mister Wolf covers Mister Fox with the tablecloth*]

Fox. This is a very hard bed. I hope he will not be long in coming.

[*Mister Rabbit knocks at the door.*]

Wolf Hush! Here he is.

[*Mister Wolf gets out his handkerchief and pretends to cry. Rabbit knocks again*]

Wolf C-c-c-c-come in.

[*Mister Rabbit peeps round the door.*]

Rabbit Why, Mister Wolf, what's the matter? You seemed quite happy when I saw you a few moments ago. And where is friend Fox?

Wolf. Bad news, Mister Rabbit. Terrible news. My beloved Fox is no more. I came here to find him stretched dead on the floor. There he lies, covered with his own tablecloth.

[*Mister Wolf cries more than before*]

Rabbit. This is bad news indeed. How suddenly he has died! Why, only this morning I saw him out fishing.

Wolf. We can only be thankful that he could not have suffered long. I am just off to arrange for the funeral. Perhaps you would kindly stay with my dear friend's body till I return.

Rabbit Why, certainly, Mister Wolf. I am always ready to oblige my friends, even in such sad duties.

[*Mister Wolf goes out. Rabbit stands near the door and looks at Mister Fox*]

Rabbit Now this is a very strange thing. I wonder if he is really dead. It doesn't look like it. You can always tell if a Fox is dead by the way he keeps shaking his left leg. I must watch him carefully.

[*Mister Fox shakes his left leg a little.*]

Rabbit. Was that a leg moving?

[*Mister Fox shakes his leg a little more.*]

Rabbit. Yes, I believe one of them did move. Now let me see, would it be the right or the left?

[*Mister Fox shakes his leg still more*]

Rabbit. Yes, it's the left leg. But it is shaking so feebly that he is probably only asleep after all.

[*Mister Fox starts kicking with his left leg*]

Rabbit Aha! Now I know whether he is really dead. Oh, Mister Fox, you and your friend Wolf are not clever enough to catch ME. Here comes Wolf, but I won't wait to say good-bye to him. I hope he gives you a splendid funeral. Oh, who ever heard of a dead Fox with a shaking leg! Ha! ha! ha!

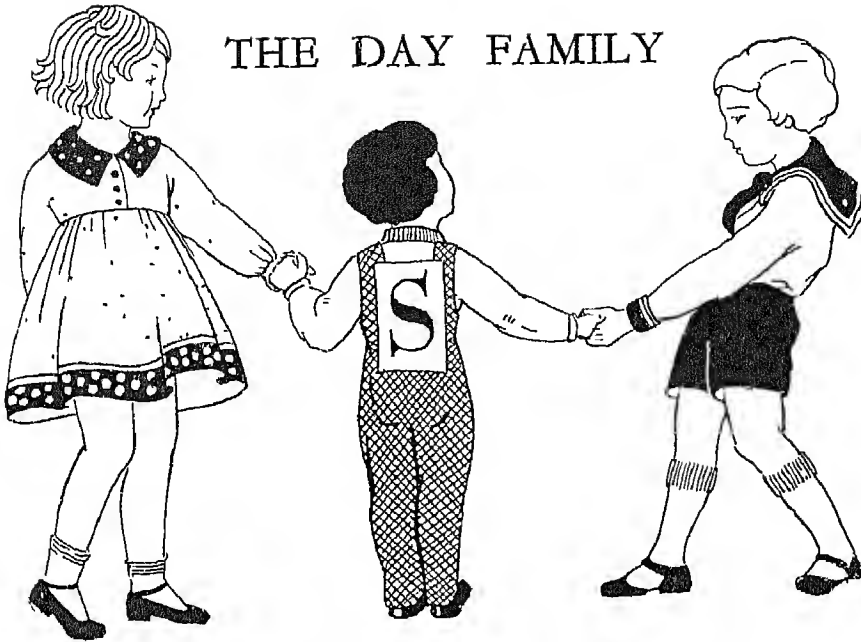
[*Rabbit runs out*]

Fox. The rascal!

[*Fox springs up and runs after him*]



THE DAY FAMILY



People in the Play—MR. SUN DAY. MRS MON DAY. MASTER TUES DAY. MASTER WEDNES DAY MASTER THURS DAY MISS FRI DAY MASTER SATUR DAY JOHN. MARY. (John and Mary wear ordinary clothes. If possible, the Days should all wear overalls of the same colour, and each should wear or carry a card back and front, with the name of the day printed on it.)

Scene.—The playroom of John and Mary's house.

[John and Mary are sitting on the floor playing with bricks when the five Day Children run in. John and Mary jump up.]

John Hullo, who are you?

Mary What are you doing here?

Day Children (all together). We are the Day Children

John (reading their names) Tues Day, Wednes Day, Thurs Day, Fri Day, Satur Day—why, they are the days of the week!

Mary. But where are Sun Day and Mon Day?

Tues Oh, you mean Father and Mother. They are coming along behind us. They cannot run so quickly as we can. Here they are.

[Enter Sun Day and Mon Day.]

John } How do you do?
Mary. }

[John shakes hands with Sun Day, and Mary with Mon Day]

Sun Very well, I thank you. I am Mr Sun Day. I am named after the Sun, the great shining light in the sky. It is so beautiful that it makes men think of God. That is why on my day many people go to church to praise Him. Everyone rests on Sunday.

John I know they do. There is no school on Sunday, and we often have an extra hour in bed.

Mary. What a lazy boy you are growing, John. You think about nothing but resting, and you never want to do any work. I think Sunday is a very busy day. There is church in the morning, and we always go for a splendid walk in the afternoon, and in the evening Father tells us stories.

Sun This is my wife, Mrs Day

Mon I am Mrs. Mon Day. I am called after the moon, the other great light in the sky. I am a very busy person, because I come after my husband. People do not

work on his day, so they have to do twice as much on mine. Some of my friends call me Washing Day, too.

Mary. Yes, I know. Monday is always washing day. I like you, Mrs. Mon Day, because you see that we have nice clean clothes to wear.

John. I'm not sure that I *do* like you Mrs. Mon Day. You make me begin lessons again, you know. I think I like your husband better.

Sun. That is lazy of you, John. You would not like every day to be a Sunday, would you? You enjoy Sunday rest because you do not have it very often, but if you had it every day you would soon be tired of doing nothing.

Mon. This is my eldest son, Tues Day.

Tues. My name is Master Tues Day. I was called after the great war god, Tyr. But I am not very fond of fighting. I am a quiet little fellow really, and I like best to stay at home and help Mother with the ironing.

Mon. Yes, indeed. I don't know what I should do without Tues Day.

Sun. This is our second son, Wednes Day. He is the best-behaved of all our children.

Wednes. So I ought to be, for I was named after Woden, the king of all the gods.

Mary. I like Wednesday. It is a nice, steady day, and I have settled down to my lessons well by then.

John. I like Wednesday too, because it is a half-holiday.

Sun. This is our third son, Thurs Day.

Thurs. I am called after Thor, the strongest and bravest of the gods. If you have anything difficult to do, it is a good thing to begin it on Thursday. Then you will be brave enough and strong enough to finish it.

John. I like Thursday, because then I know that the week is nearly over.

Mary. Oh, John, how lazy you are! I always begin to hurry and bustle on Thursday, because I know that the week-end is near, and I must get my lessons finished.

Sun. Now that you know my three strong sons—Tues Day, Wednes Day and Thurs Day—I want you to meet my only daughter Fri Day.

Mary. Oh, isn't she pretty!

Fri. Father and Mother think so too. That is why they called me Fri Day, after Freya, the most beautiful of all the goddesses.

John. Some people say that Friday is an unlucky day.

Fri. I know they do. It makes me very unhappy to hear them say so, for it is not true. Friday is a good day really. It is easy to work well on a Friday.

John. Friday is the only day when I *do* work. I always do my best then, so as not to have any work left over to do on Saturday.

Sun. This is Satur Day, our youngest child.

Mary. What a dear little fellow!

John. I love Saturdays.

Satur. So does everyone. I am the jolly day. I am named after Saturn, the god of the harvest. He was the merriest of the gods, and I am the merriest of the days. On my day all children play and have fun.

Mon. Now you have met all the Day family.

John. Yes. Now stand in a row with your backs to us and we will put you in your right order.

[The Days arrange themselves side by side, close together, in a row with their backs to the audience, in this order:—Satur Day, Tues Day, Fri Day, Thurs Day, Wednes Day, Mon Day, Sun Day. John and Mary stand in front of the line.]

John. Now, Mr. Sun Day.

[He turns Sun Day round, takes him to the opposite end of the line and stands him there facing the audience.]

Mary. This is Mrs. Mon Day. Move along, Satur Day.

[She takes Mon Day and stands her facing the audience between Sun Day and Satur Day. Satur Day and the

rest of the Days move up to make room for her]

John And now Master Tues Day, the biggest boy You must move again, Satur Day, this is not your place

[He stands Tues Day between Mon Day and Satur Day, facing the audience; the rest move up as before, except Sun Day and Mon Day.]

Mary Then there is Master Wednes Day *[Mary turns round Thurs Day by mistake.]* Oh no! this is Thurs Day How silly of me!

John. This is Wednes Day.

[He turns him round, and puts him next to Tues Day The others move up as before]

Mary. And Thurs Day comes after Wednes Day.

[She puts Thurs Day in his place]

John And now pretty little Miss Fri Day.

[He turns her round and puts her next to Thurs Day]

Mary And here is dear little Satur Day standing in his right place

[She turns him round as he stands at the end of the line]

There! now you are all in the right order

Mon. Clever children!

Sun. *(looking at his watch).* Why, it is half past four, time for tea Come along, children

John. } Oh, must you go ?
Mary }

Mon. Well, of course, one of us must always stay with you

John Why?

Mary Because it is always *some day*, silly. We never wake up and find it is no day at all, do we?

Mon Come along, children

Sun All except Satur Day,—he must stay.

John Why must Satur Day stay? Can't Fri Day stay instead?

Mary Oh, John, you *are* slow! Don't you understand yet? Satur Day must stay because it *is* Saturday.

John So it is How stupid of me! Good-bye, dear little Fri Day, I will see you again next week

[All the Days except Satur Day line up one behind the other in order, calling out as they go]

All the Days. Good-bye, John Good-bye, Mary.

John } Good-bye, all of you
Mary. }

Mary. You know, Satur Day, we really like you best of all the days of the week, only we didn't like to say so, for fear of hurting the other Days' feelings

John I say, can't you smell muffins? We always have muffins for tea on Saturday Come along!

[John and Mary each take one of Satur Day's arms, and they all run out together]

John } Hurrah for Saturday!
Mary }





A BOWL OF CREAM



People in the Play.—PHYLLIS PHOEBE.
GRANDFATHER CLOCK. A BROWNIE

Things wanted in the Play A plate A duster. A small bowl of milk, or water A sixpence

Scene—The kitchen of Buttercup Farm There is a window, and one door and a table The clock stands in one corner. The person who plays the clock holds a cardboard clock-face in front of his face

[*Phyllis is dusting, and singing as she works Soon Phoebe comes in, carrying a bowl of cream.*]

Phoebe. Why, Phyllis! How busy you are!

Phyllis. I want to leave everything clean and fresh so that we may start early for the Fair in the morning

Phoebe And you have polished the pans in the dairy, they are as bright as silver!

Phyllis. I like to make them shine.

Phoebe It is easy to see that you are new at Buttercup Farm. Silly thing that you are to work so hard! I never do I know a trick worth two of that! Do you see this bowl of cream?

Phyllis. What are you going to do with it?

Phoebe I put it on the window sill . . . so . . . and leave the window open just a little way . . . like that . . .

[*Phoebe puts the bowl on the sill, and opens the window*]

Phyllis. And then?

Phoebe In the night someone comes in, and drinks the cream He sweeps and dusts the kitchen, and sets everything straight Then he washes the dairy floor, and cleans the pans and the milk pails

Phyllis But who is he?

Phoebe. I do not know. I have never spoken to him But one night I hid behind the clock, and I saw him He is a little brown man.

Phyllis And he does all your work for you! How kind of him!

Phoebe But he must have the best cream, and no one must disturb him at his work If he had seen me watching him, he would have run away, and never come back again He is as shy as a little brown rabbit

Phyllis I should like to see him

Phoebe So you may if you hide behind the clock He will never find you there. But you will be too sleepy to come to the Fair in the morning

Phyllis. No, the cock will wake me

Phoebe. What will you buy at the Fair?

Phyllis I have no money to spend, for I gave my wages to my mother But I shall see all the sights, and dance and sing

Phoebe. What a queer girl you are!

[*Phoebe yawns*]

Well, I am off to bed Be sure you do not frighten my Brownie away.

[*Phoebe goes out Phyllis takes off her shoes, leaves them on the floor and hides behind the clock*]

The Clock Ting-ting-ting-ting-ting-ting-ting-ting-ting Ten o'clock, and no Brownie. He is late to-night.

[*Brownie runs in*]

Brownie. Good evening, Grandfather! How are you?

The Clock A little wheezy, but quite well, thank you

[*Brownie runs to the window, picks up the bowl, and drinks the cream greedily Then he sighs, looks sadly at the empty bowl, and picks up the duster*]

Brownie Oh dear! I am so tired!

[*Brownie rubs his eyes and yawns*]

But I must earn my cream

[*Brownie begins to dust.*]

The Clock. There is a surprise for you to-night.

Brownie Where?

The Clock. Look and see See if you can find any dust.

[*Brownie runs his finger along the window ledge, and the edge of the table*]

Brownie. Why! There is no dust!

[*He runs out, and comes back quickly*]

And someone has been cleaning the dairy too I can see my face in the pans I could eat my supper off the floor. And the milk pails are as sweet as clover! Hurrah! Hurrah!

[*Brownie dances round the room*]

No work for me to-night! Lazy Phoebe is lazy no longer. I will leave something in her shoe.

The Clock Lazy Phoebe is as lazy as ever We have a new dairymaid Her name is Phyllis, and these are her shoes

Brownie. And her shoes tell me all about her Look how thin the soles are. That

shows how much running to and fro they have done! Mistress Phyllis shall have something to spend at the Fair to-morrow

[*Brownie puts a sixpenny piece into her shoe*]

And now I am off to my bed in the hay Good night, Grandfather

[*Brownie runs out Phyllis comes out from behind the clock*]

Phyllis What a queer little man! And what has he left in my shoe?

[*Phyllis looks into the shoe.*]

A sixpence! A silver sixpence to spend at the Fair! I must tell Phoebe!

[*Phyllis runs to the door and calls*]

Phoebe! Phoebe!

[*Phoebe enters in her nightgown The Brownie runs in They all join hands with the Clock and sing*]

I love sixpence, pretty little sixpence,

I love sixpence better than my life

I'll spend a penny of it,

I'll lend a penny of it,

And I'll take fourpence back to my wife.

I love fourpence, pretty little fourpence,

I love fourpence better than my life

I'll spend a penny of it,

I'll lend a penny of it.

And I'll take twopence back to my wife.

I love twopence, pretty little twopence,

I love twopence better than my life

I'll spend a penny of it,

I'll lend a penny of it,

And I'll take nothing back to my wife

I love nothing, pretty little nothing,

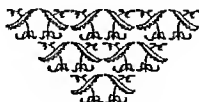
I love nothing better than my life,

I'll spend nothing of it,

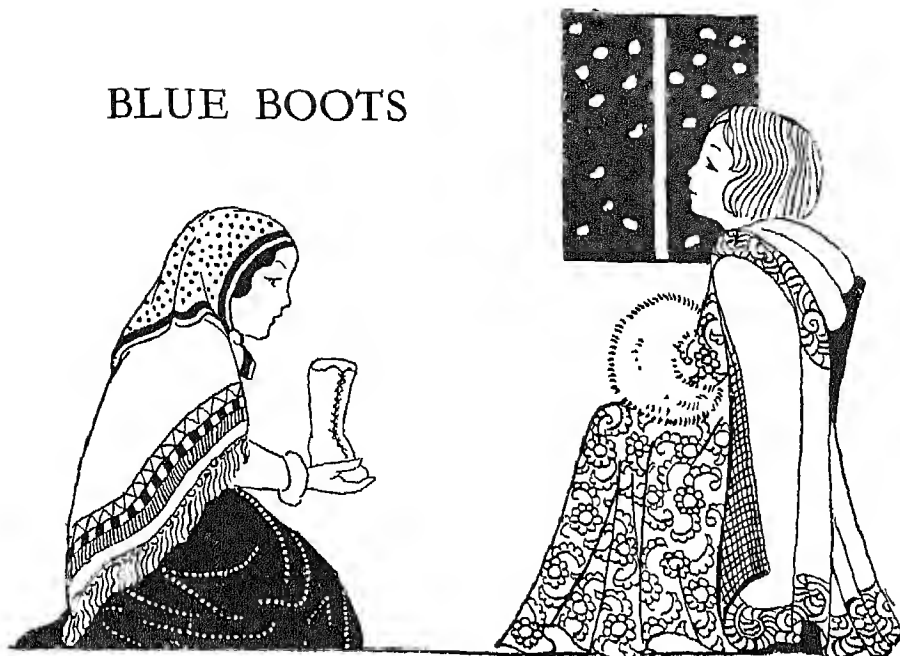
I'll lend nothing of it,

And I'll take nothing back to my wife.

[*All run out*]



BLUE BOOTS



People in the Play—THE SHOEMAKER.
THE SHOEMAKER'S WIFE THE LORD THE
LADY. THE SERVANT

Things wanted in the Play.—Two boots, which should be painted blue, or covered with blue cloth or paper. A hammer. Two purses. A poker. Some bells to sound like sleigh bells, like those on a tambourine or on a child's harness. Two or three children in the background to howl like wolves.

Scene—A room in the Shoemaker's cottage. There are two doors, one leading to the outside and one to the inside of the cottage. There is a cupboard by the wall. Two chairs stand one on each side of the fireplace.

[*The Shoemaker sits in one chair with a boot on his knee, tapping the heel with a hammer, the other boot lies on the floor. The Wife sits in the other chair with her hands folded. They both look very sad.*]

Shoemaker. There. The boots are done at last. They are very well sewn and I am glad, for they are the last boots I shall ever make. We have no money to buy any more leather.

[*He hands the boots to his Wife.*]

Wife. They are very tiny. Only a lady could wear them, and she would have to be a very small lady. What a curious colour they are! I have never heard of blue boots before.

Shoemaker. I have had a fine piece of blue leather by me for a long time, but because it was blue I have never made it into boots. But now these boots are all we have left to sell, and if no one will buy them we must starve.

Wife. Perhaps someone will buy them. Who knows?

[*She puts the boots away in the cupboard. There is a knock at the outside door.*]

Shoemaker. Someone is knocking.

[*The Wife opens the outside door. The Servant comes in.*]

Servant. Good evening to you. I am the servant of a noble lord and lady who are travelling to their castle. My lady is very tired, and when my lord saw the firelight shining through the windows of your cottage, he sent me to ask if she might rest here.

Shoemaker. I am a poor shoemaker, and I live here alone with my wife. We have no

food, but we have a warm fire Your lord and lady may rest in our cottage and welcome

[He pokes the fire, while the Wife runs about tidying up the room]

Wife What sort of man is your lord?

Servant A very sad sort of man to-day, I promise you He and his lady have quarrelled and she will not speak to him.

Wife. Why have they quarrelled?

Servant. I do not know. But here they come

[A jingle of sleigh bells is heard The Lord and Lady come in by the outside door. The Lord has the two purses in his pocket. The Shoemaker and his Wife bow low to them]

Shoemaker and Wife Welcome to our poor house

Lord Thanks, kind friends My lady is tired and needs rest Sit down, my dear, and warm your cold hands

[The Lord tries to take her hand to lead her to the fire, but she turns away and sits down angrily]

Lord Will you attend to my horses, and see that they have food?

[The Shoemaker, his Wife and the Servant go out by the outside door. The Lord sits down opposite the Lady.]

Lord Are you still angry with me?

Lady Of course I am, because you will not do what I ask

Lord You want me to drive back to the place where we slept last night and fetch your boots. But you know there is a storm coming, it is snowing already.

[Wolves howl in the distance.]

Besides, there are wolves about. Listen!

[Wolves howl]

Don't you hear them howling? We must hurry on to the castle as soon as you are ready. It is not safe to go back to fetch your boots to-night

[The Lady bursts into tears]

Lady. They are such beautiful boots! They are blue, and no other lady in the land

has any to compare with them. I shall not be happy again till you bring me my boots, my beautiful blue boots.

[The Shoemaker, his Wife and the Servant come timidly in through the outside door]

Lady Good woman, have you a bedroom where I can lie down and rest a little?

Wife Certainly, my lady. Come this way

[The Lady and the Wife go out by the inside door]

Lord Oh, what an unhappy man I am!

[He buries his face in his hands]

Shoemaker (whispering) Why is he unhappy?

Servant. Shall I ask him?

Shoemaker. Yes, perhaps you may be able to help him

[The Servant goes up to the Lord]

Servant (timidly) My lord, can I do anything for you?

Lord I would give a hundred gold pieces to anyone who would bring me a pair of blue boots.

[The Servant looks very puzzled]

Servant Blue boots? Where could I find such a pair?

[The Servant goes back to the Shoemaker.]

Servant. He says he must have a pair of blue boots

Shoemaker What? Blue boots, did you say? Blue boots?

Servant. Yes, blue boots. Have you ever heard of anything so foolish?

Shoemaker. Come with me

[The Shoemaker takes the Servant to the cupboard and opens it.]

Shoemaker. Look in here.

Servant Oh! Why, here is a pair of blue boots!

[The Servant takes the boots and puts them on the Lord's knees.]

Servant Master! Master! Look at these!

Lord Upon my word, a pair of blue boots!

[The Lord holds them up]

Lord. How wonderful! But where did they come from?

[*The Lady and Wife come in by the inside door. They see the boots which the Lord is holding up.*]

Lady Why, there are my blue boots!

Wife Those are the last boots my husband made

Lord They are yours, my dear. I will buy them for you. Will you try them on?

[*The Lady sits down.*]

Lady They are sure to be too big. I have the smallest foot of all the ladies in the land

[*The Lady tries on the boots. The Shoemaker and the Wife help her.*]

Lady Why, they fit perfectly. Who made them?

Shoemaker I did, my lady.

Lady How much do they cost?

Lord A hundred gold pieces

Shoemaker Oh, Sir!

Lady How very expensive!

[*The Lord takes the purses out of his pocket.*]

Lord I would pay much more than that to please you. Here, Shoemaker, there are fifty gold pieces in this bag to pay you for making the boots. And here is another

fifty for my servant, because he found them for me. And now, my wife, will you forgive me?

Lady Indeed I will. I am sure no other lady in the land has a husband who would pay a hundred gold pieces for her boots.

[*All five come forward together. The Lord and Lady, the Shoemaker and his Wife hold hands. The Servant stands in the middle.*]

Lady

Had a lady ever
Finer boots of blue?

Lord

As my wife is happy,
I am happy too.

Servant

I have made my fortune
With this bag of gold

Wife

We need fear no longer
Hunger, thirst or cold.

Shoemaker

When you're poor and needy
Here's what you must do—
Use up all your leather
Even if it's blue.



CLASS-BOOKS FOR THE CHILDREN

THE practice of private study in the classroom has of recent years become an integral part of the education of children. The excellent methods adopted to teach reading in the modern infant school have made it possible for children of even seven years of age to read suitable books with profit and delight. It cannot be too strongly urged that the foundation of all true education is self-help. The "spoon-feeding" methods of teaching practised in former years have to a large extent been superseded by training children to learn and to do for themselves.

An Encyclopaedia of this character would not be complete without provision for children's private study in connection with it. For this reason, the children's stories in the history and geography lessons, the English literature, the composition, some of the plays, the poetry, the arithmetic and the music are published separately in delightful, though inexpensive, books for the use of the children.

Thus the full extent of the needs of both teacher and pupil have been met in this work. On the one hand, the detailed and comprehensive nature of the work contained in the Encyclopaedia supplies the teacher with abundant material for a full four years' course of study in the junior school, and readily admits of adaptation to the special requirements of any individual syllabus. The children, on the other hand, are given a threefold source of information and delight,—a thoroughly informed and enthusiastic teacher, class illustrations and books for private study.

The list of pupils' books specially prepared for use in conjunction with this Encyclopaedia is here set out.

CLASS-BOOKS OF ANCIENT AND MODERN HISTORY.—This series of four books has been prepared to meet the needs of teachers in junior schools. All the lessons are written in story form round some outstanding historical character or event, and in such language as young children will understand. The stories have been selected from the whole range of history, beginning with primitive man, and leading through a gallery of striking pictures to modern times. No attempt has been made to present world history as a continuous narrative, but chronological sequence is strictly followed, and each story is so linked with the next that the whole will form a sound foundation for the more extensive study of history in the senior schools.

The stories are illustrated by drawings specially prepared from authentic sources by John Macfarlane. At the end of each chapter is the briefest summary for the children to "Remember," and the "Exercises," for oral or written work, are of such a character as to stimulate and interest the pupil. Simple "Time Charts" are included in each of Books II., III. and IV., and maps, diagrams and line drawings bearing on the subject matter are freely used throughout the series.

The lessons contained in this series of history books correspond with those dealt with in this Encyclopaedia. The books for the four years cover the following periods.

Book I. Long, Long Ago.

Book II. Abraham to Alexander the Great.

Book III. Romans to the Normans.

Book IV. Crusades to the Restoration.

LITERATURE OLD AND NEW (PROSE READERS FOR JUNIOR SCHOOLS)—Good literature is fundamental to the study of language, and it is with this principle in view that

these four readers for junior schools have been prepared. The material selected is of recognised literary merit, the exercises are not extraneous to the text, but are framed to foster the interest and understanding of the child, and to provide for language-study through the direct medium of the story.

The material has been chosen from a variety of authors, both old and new. The stories have not been re-written, therefore the varying styles of different authors have been preserved even in the simple Book I. Only a few of the more familiar stories are included, so that there is a considerable body of fresh matter for both teacher and pupil. Included in each book are two or three original plays, which may be acted without costume and with only the simplest stage properties. Most of the illustrations have been specially drawn for these books by H. R. Millar.

All the exercises have a direct bearing upon the story and are designed to bring out its full value. The exercises throughout are similar to those included in the Model Lessons beginning on page 138 of this volume of the Encyclopaedia.

There are four books in the junior series, viz:

- Book I.* For children from 7 to 8 years of age.
- Book II.* For children from 8 to 9 years of age.
- Book III.* For children from 9 to 10 years of age.
- Book IV.* For children from 10 to 11 years of age.

POETS AND POETRY.—In books of poetry the pupil specially needs some guidance to enable him to make full use of his opportunities for self-instruction. It demands an extraordinary feat of mental adjustment to turn from a lesson, say, on arithmetic, and at a moment's notice to attune the senses to the appreciation of poetry. The teacher has not always the time to prepare the children's minds for the study. These three books of **POETS AND POETRY** have been prepared to supplement the work of the teacher and to stimulate the mental activities of the children.

The poems are arranged in groups under certain subject headings or with a common thought running through each group. The notes at the beginning of each section are framed with the object of creating a suitable atmosphere for the study of the poems, and the notes and questions at the end of each section will guide the pupil to a fuller appreciation of the beauty of the poetry.

The sketches in the books are mainly intended as pictorial illustrations of certain words and phrases unfamiliar to children, especially to those children living in cities.

The majority of the poems are from the works of modern poets: Robert Bridges, Patrick Chalmers, Mary E. Coleridge, William Davies, Walter de la Mare, John Drinkwater, Rose Fyleman, Wilfrid Gibson, Thomas Hardy, Rudyard Kipling, John Masefield, Sir Henry Newbolt, Alfred Noyes, J. C. Squire, James Stephens, Dorothy Margaret Stuart, Wilfrid Thorley, William Butler Yeats, etc.

There are three books in the junior series, viz.:

- Junior Book I.* For children from 7 to 9 years of age.
- Junior Book II.* For children from 9 to 10 years of age.
- Junior Book III.* For children from 10 to 11 years of age.

THE PUPILS' CLASS-BOOKS OF ARITHMETIC.—This set of pupils' books is the outcome of some years of striving to make the teaching of arithmetic genuinely suitable to the varying ages and capacities of the children.

The following are the main features of the books.

A unique arrangement.—Exercises of a similar character for Two Divisions of a class are arranged on opposite pages. The exercises for the Second Division are simpler and more direct than those for the First Division. This unique arrangement enables children of unequal mental capacity to proceed at their own rate.

Fundamentals—The sums in the books are mainly concerned with the simple rules, compound rules of money, common weights and measures, and money exercises dealing with everyday transactions of a child's experience. Care has been taken not to strain the reasoning faculties beyond the child's capacity at this stage. The principal aim has been to prepare a sure foundation by the doing of a moderate amount well.

Oral work—The oral exercises in the Teacher's Book bear directly on the sums to be worked on the corresponding page of the Pupil's Book. The Teacher's Book also contains exercises for mental drill, and practical work.

Mechanical sums—Mechanical sums of many types, memory work, self-help exercises, and notes on the problems, etc., are set out in the last few pages of each book, so that the fundamentals can be constantly reviewed at the teacher's discretion.

Revision.—Revision exercises on the mechanical rules are included at the bottom of every page, so that a rule once taught is frequently recapitulated. Certain essential types of sums are repeated again and again in varying forms throughout the book.

There are four books in the junior series, viz :

- Junior Book I.* For children from 7 to 8 years of age
- Junior Book II* For children from 8 to 9 years of age
- Junior Book III* For children from 9 to 10 years of age
- Junior Book IV* For children from 10 to 11 years of age.

Corresponding Teachers' Books are issued for each year.

ADVENTURES INTO NATURE.—A graded series of books covering a full four years' course of Nature Study with the syllabus arranged as far as possible on a seasonal basis in parallel books for the "A" and "B" streams of a class.

Each book is illustrated with 16 plates in full colour and numerous black-and-white drawings. The coloured plates are reproduced wholly or in part from the 62 Class Pictures which accompany the series, of which details may be obtained from Messrs. Macmillan & Co., Ltd.

ESSENTIALS TO THE STUDY OF NATURE AND SIMPLE BIOLOGY.—One book providing an alternative course for the fourth year in the junior school and based on the course set out in Vol. VII.

THE EMPIRE GEOGRAPHY BOOKS.—This series of four books for junior classes has been arranged on a unique plan. The introduction to each lesson consists of several large illustrations prepared from authentic sources with a series of questions following each to guide the pupil in making his own observations. Following the pictures is interesting descriptive matter which throws further light on the illustrations and gives much additional information. The books run parallel with the stories developed in the geography sections of this Encyclopaedia. They are most attractive in appearance, and the mere glancing at the pages will stimulate the children's interest in geography and induce them to study the text.

The four books in this series are—

- Book I.* Treasure from Land and Sea
- Book II.* Life in Canada and Australasia.
- Book III.* Life in British Africa and India.
- Book IV.* The British Isles.

TWENTY ESSENTIAL STUDIES IN GEOGRAPHY.—One book providing an alternative course for the fourth year in the junior school.

MUSIC BOOKS.—There are four music books prepared by Sir Henry Walford Davies for the use of pupils in the junior schools. These books contain.

- (a) Musical phrases for weekly class practice of the Echo Game, and for use in tune writing.
- (b) Phrases with stave-space for schools to add their own reply-phrases
- (c) Stave-spaces for schools to complete their own simple AA, BA tunes.
- (d) Rhymes spaced under staves, with the first musical phrase given, for schools to complete.

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STORIES FROM THE WHOLE RANGE OF HISTORY

III A and III B—

ENGLISH HISTORY FROM THE BRITONS TO THE STUARTS.

IV A and IV B—

STUARTS TO MODERN TIMES (1946).

